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His Leu Tyr Phe Phe Leu Met Phe Arg Tyr Pro Met Asp Leu Gly
                                    190
Gly Arg Asn Phe Leu Ser Thr Pro Gln Phe Leu Tyr Arg Trp Leu
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                                                         210
Pro Ser Arg Arg Gly Gly Val Ser Gly Phe Gly Val Pro Pro Ala
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Asn Trp Gly Gln Gly Phe Arg Leu Gly Asp Gln
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<211> 1373

<212> DNA

<213> Homo sapiens

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<213> Homo sapiens

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Val Ile Thr Pro Gly Ser Pro Glu Pro Val Ile Leu Val Ala Cys

Val Pro Leu Val Phe Asp Asp Glu Glu Glu Ser Lys Leu Thr Tyr 6.5

Thr Glu Ile His Gln Glu Tyr Lys Glu Leu Val Glu Lys Leu Leu

Glu Gly Tyr Leu Lys Glu Ile Gly Ile Asn Glu Asp Gln Phe Gln

Glu Ala Cys Thr Ser Pro Leu Ala Lys Thr His Thr Ser Gln Ala

Ile Leu Gln Pro Val Leu Ala Ala Glu Asp Phe Thr Ile Phe Lys

Ala Met Met Val Gln Lys Asn Ile Glu Met Gln Leu Gln Ala Ile 145 150

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Asp Gly Ser Asp Val Val Ser Asp Leu Glu His Glu Glu Met Lys
Ile Leu Arg Glu Val Leu Arg Lys Ser Lys Glu Glu Tyr Asp Gln
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Glu Glu Glu Arg Lys Arg Lys Gln Leu Ser Glu Ala Lys Thr
Glu Glu Pro Thr Val His Ser Ser Glu Ala Ala Ile Met Asn Asn
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Ser Gln Gly Asp Gly Glu His Phe Ala His Pro Pro Ser Glu Val
Lys Met His Phe Ala Asn Gln Ser Ile Glu Pro Leu Gly Arg Lys
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Val Glu Arg Ser Glu Thr Ser Ser Leu Pro Gln Lys Gly Leu Lys
Ile Pro Gly Leu Glu His Ala Ser Ile Glu Gly Pro Ile Ala Asn
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Leu Ser Val Leu Gly Thr Glu Glu Leu Arg Gln Arg Glu His Tyr
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Leu Lys Gln Lys Arg Asp Lys Leu Met Ser Met Arg Lys Asp Met
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                                                        315
Arg Thr Lys Gln Ile Gln Asn Met Glu Gln Lys Gly Lys Pro Thr
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<211> 418

<212> DNA

<213> Homo sapiens

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<211> 424

<212> PRT

<213> Homo sapiens

<400> 14

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Ser Ser Arg Ile Leu Leu Val Lys Tyr Ser Ala Asn Glu Glu Asn 35 40 45

Lys Tyr Asp Tyr Leu Pro Thr Thr Val Asn Val Cys Ser Glu Leu 50 55 60

Val Lys Leu Val Phe Cys Val Leu Val Ser Phe Cys Val Ile Lys . 65 70 75

Lys Asp His Gln Ser Arg Asn Leu Lys Tyr Ala Ser Trp Lys Glu 80 85 90

Phe Ser Asp Phe Met Lys Trp Ser Ile Pro Ala Phe Leu Tyr Phe 95 100 105

Leu Asp Asn Leu Ile Val Phe Tyr Val Leu Ser Tyr Leu Gln Pro 110 115 120

Ala Met Ala Val Ile Phe Ser Asn Phe Ser Ile Ile Thr Thr Ala Leu Leu Phe Arg Ile Val Leu Lys Arg Arg Leu Asn Trp Ile Gln Trp Ala Ser Leu Leu Thr Leu Phe Leu Ser Ile Val Ala Leu Thr 155 Ala Gly Thr Lys Thr Leu Gln His Asn Leu Ala Gly Arg Gly Phe 175 His His Asp Ala Phe Phe Ser Pro Ser Asn Ser Cys Leu Leu Phe 185 190 Arg Ser Glu Cys Pro Arg Lys Asp Asn Cys Thr Ala Lys Glu Trp 205 Thr Phe Pro Glu Ala Lys Trp Asn Thr Thr Ala Arg Val Phe Ser 220 His Ile Arg Leu Gly Met Gly His Val Leu Ile Ile Val Gln Cys Phe Ile Ser Ser Met Ala Asn Ile Tyr Asn Glu Lys Ile Leu Lys Glu Gly Asn Gln Leu Thr Glu Ser Ile Phe Ile Gln Asn Ser Lys 260 Leu Tyr Phe Phe Gly Ile Leu Phe Asn Gly Leu Thr Leu Gly Leu Gln Arg Ser Asn Arg Asp Gln Ile Lys Asn Cys Gly Phe Phe Tyr Gly His Ser Ala Phe Ser Val Ala Leu Ile Phe Val Thr Ala Phe 305 Gln Gly Leu Ser Val Ala Phe Ile Leu Lys Phe Leu Asp Asn Met Phe His Val Leu Met Ala Gln Val Thr Thr Val Ile Ile Thr Thr Val Ser Val Leu Val Phe Asp Phe Arg Pro Ser Leu Glu Phe Phe Leu Glu Ala Pro Ser Val Leu Leu Ser Ile Phe Ile Tyr Asn Ala 365 370 Ser Lys Pro Gln Val Pro Glu Tyr Ala Pro Arg Gln Glu Arg Ile 385 Arg Asp Leu Ser Gly Asn Leu Trp Glu Arg Ser Ser Gly Asp Gly 395 Glu Glu Leu Glu Arg Leu Thr Lys Pro Lys Ser Asp Glu Ser Asp 415 Glu Asp Thr Phe

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<211> 458

<212> PRT

<213> Homo sapiens

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Ala Ser Ala Asn Pro Pro Gly Pro Ala Trp Val Ala Leu Cys Pro 35 40 45

Gly Ser Ser Ser Pro Arg Pro Trp Pro Ser Leu Pro Thr Ser Ser 50 55 60

Ser Gly Ser Cys Pro Thr Ser His Thr Ala Arg Pro Ile Gly Thr  $65 \hspace{1cm} 70 \hspace{1cm} 75$ 

Cys Phe Ser Ile Ala Ser Leu Lys Gln Trp Ser Arg Val Ser Met 80 85 90

Phe Pro Thr Arg Leu Ser Pro Cys Ser Ser Ala Thr Glu Gln Thr 95 100 105

Glu Arg Asp Ser Ala Thr Ala Tyr Arg Met Thr Val Glu Val Leu 115 Gly Thr Val Leu Gly Thr Ala Ile Gln Gly Gln Ile Val Gly Gln 125 Ala Asp Thr Pro Cys Phe Gln Asp Phe Asn Ser Ser Thr Val Ala Ser Gln Ser Ala Asn His Thr His Gly Thr Thr Ser His Arg Glu Thr Gln Lys Ala Tyr Leu Leu Ala Ala Gly Val Ile Val Cys Ile 170 175 180 Tyr Ile Ile Cys Ala Val Ile Leu Ile Leu Gly Val Arg Glu Gln Arg Glu Pro Tyr Glu Ala Gln Gln Ser Glu Pro Ile Ala Tyr Phe 200 205 Arg Gly Leu Arg Leu Val Met Ser His Gly Pro Tyr Ile Lys Leu 215 Ile Thr Gly Phe Leu Phe Thr Ser Leu Ala Phe Met Leu Val Glu Gly Asn Phe Val Leu Phe Cys Thr Tyr Thr Leu Gly Phe Arg Asn Glu Phe Gln Asn Leu Leu Leu Ala Ile Met Leu Ser Ala Thr Leu 265 Thr Ile Pro Ile Trp Gln Trp Phe Leu Thr Arg Phe Gly Lys Lys 275 280 Thr Ala Val Tyr Val Gly Ile Ser Ser Ala Val Pro Phe Leu Ile 290 295 300 Leu Val Ala Leu Met Glu Ser Asn Leu Ile Ile Thr Tyr Ala Val Ala Val Ala Ala Gly Ile Ser Val Ala Ala Ala Phe Leu Leu Pro 320 Trp Ser Met Leu Pro Asp Val Ile Asp Asp Phe His Leu Lys Gln Pro His Phe His Gly Thr Glu Pro Ile Phe Phe Ser Phe Tyr Val 350 355 Phe Phe Thr Lys Phe Ala Ser Gly Val Ser Leu Gly Ile Ser Thr 365 370 375 Leu Ser Leu Asp Phe Ala Gly Tyr Gln Thr Arg Gly Cys Ser Gln Pro Glu Arg Val Lys Phe Thr Leu Asn Met Leu Val Thr Met Ala Pro Ile Val Leu Ile Leu Leu Gly Leu Leu Phe Lys Met Tyr

415

420

410

Pro Ile Asp Glu Glu Arg Arg Gln Asn Lys Lys Ala Leu Gln 425 430 435

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Ser Thr Glu Leu Ala Ser Ile Leu 455

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<211> 571

<212> DNA

<213> Homo sapiens

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<211> 1173

<212> DNA

<213> Homo sapiens

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aaacagaaaa cctgttagaa atgtggtggt ttcagcaagg cctcagtttc 150
cttccttcag cccttgtaat ttggacatct gctgctttca tatttcata 200
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<210> 23

<211> 266

<212> PRT

<213> Homo sapiens

<400> 23

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Val Ile Trp Thr Ser Ala Ala Phe Ile Phe Ser Tyr Ile Thr Ala
20 25 30

Val Thr Leu His His Ile Asp Pro Ala Leu Pro Tyr Ile Ser Asp 35 40 45

Thr Gly Thr Val Ala Pro Glu Lys Cys Leu Phe Gly Ala Met Leu 50 55 60

Asn Ile Ala Ala Val Leu Cys Ile Ala Thr Ile Tyr Val Arg Tyr
65 70 75

Lys Gln Val His Ala Leu Ser Pro Glu Glu Asn Val Ile Ile Lys 80 85 90

Leu Asn Lys Ala Gly Leu Val Leu Gly Ile Leu Ser Cys Leu Gly
95 100

Leu Ser Ile Val Ala Asn Phe Gln Lys Thr Thr Leu Phe Ala Ala 110 115 120

His Val Ser Gly Ala Val Leu Thr Phe Gly Met Gly Ser Leu Tyr 125 130 135

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 His Gly Lys Gln Val Phe Trp Ile Arg Leu Leu Val Ile Trp
 Cys Gly Val Ser Ala Leu Ser Met Leu Thr Cys Ser Ser Val Leu
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                                      175
 His Ser Gly Asn Phe Gly Thr Asp Leu Glu Gln Lys Leu His Trp
                                      190
 Asn Pro Glu Asp Lys Gly Tyr Val Leu His Met Ile Thr Thr Ala
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                                      205
                                                          210
 Ala Glu Trp Ser Met Ser Phe Ser Phe Phe Gly Phe Phe Leu Thr
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 Tyr Ile Arg Asp Phe Gln Lys Ile Ser Leu Arg Val Glu Ala Asn
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Ser Asp Leu Ala Glu Leu Arg Glu Leu Ser Glu Val Leu Arg Glu 50 55 60

Tyr Arg Lys Glu His Gln Ala Tyr Val Phe Leu Leu Phe Cys Gly 65 70 75

Ala Tyr Leu Tyr Lys Gln Gly Phe Ala Ile Pro Gly Ser Ser Phe 80 85 90

Leu Asn Val Leu Ala Gly Ala Leu Phe Gly Pro Trp Leu Gly Leu 95 100 105

Leu Leu Cys Cys Val Leu Thr Ser Val Gly Ala Thr Cys Cys Tyr 110 115 120

Leu Leu Ser Ser Ile Phe Gly Lys Gln Leu Val Val Ser Tyr Phe 125 130 135

Pro Asp Lys Val Ala Leu Leu Gln Arg Lys Val Glu Glu Asn Arg 140 145 150

Asn Ser Leu Phe Phe Phe Leu Leu Phe Leu Arg Leu Phe Pro Met 155 160 165

Thr Pro Asn Trp Phe Leu Asn Leu Ser Ala Pro Ile Leu Asn Ile 170 175 180

Pro Ile Val Gln Phe Phe Phe Ser Val Leu Ile Gly Leu Ile Pro 185 190 195

Tyr Asn Phe Ile Cys Val Gln Thr Gly Ser Ile Leu Ser Thr Leu 200 205 210

Thr Ser Leu Asp Ala Leu Phe Ser Trp Asp Thr Val Phe Lys Leu 215 220 225

Leu Ala Ile Ala Met Val Ala Leu Ile Pro Gly Thr Leu Ile Lys 230 235 240

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<213> Homo sapiens

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Asn Glu Pro Gln Arg Pro Pro Pro Gln Tyr Pro Leu Leu Ile Val 50 55 60

Val Tyr Lys Val Leu Ala Thr Leu Gly Leu Ile Leu Leu Thr Ala 65 70 75

Tyr Phe Val Ile Gln Pro Phe Ser Pro Leu Ala Pro Glu Pro Val 80 85 90

Leu Ser Gly Ala His Thr Trp Arg Ser Leu Ile His His Ile Arg 95 100 105

Leu Met Ser Leu Pro Ile Ala Lys Lys Tyr Met Ser Glu Asn Lys 110 115 120

Gly Val Pro Leu His Gly Gly Asp Glu Asp Arg Pro Phe Pro Asp 125 130 135

Phe Asp Pro Trp Trp Thr Asn Asp Cys Glu Gln Asn Glu Ser Glu 140 145

Pro Ile Pro Ala Asn Cys Thr Gly Cys Ala Gln Lys His Leu Lys 155 160 165

Val Met Leu Leu Glu Asp Ala Pro Arg Lys Phe Glu Arg Leu His 170 175 180

Pro Leu Val Ile Lys Thr Gly Lys Pro Leu Leu Glu Glu Glu Ile 185 190 195

Gln His Phe Leu Cys Gln Tyr Pro Glu Ala Thr Glu Gly Phe Ser 200 205 210

Glu Gly Phe Phe Ala Lys Trp Trp Arg Cys Phe Pro Glu Arg Trp 215 220 225

Phe Pro Phe Pro Tyr Pro Trp Arg Arg Pro Leu Asn Arg Ser Gln 230 235 235

Met Leu Arg Glu Leu Phe Pro Val Phe Thr His Leu Pro Phe Pro 245 250 255

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Val Val Gly Ser Lys Met His Lys Met Pro 280 Asp Leu Phe Ile Ile 285

Gly Ser Gly Glu Ala Amet Leu Gln Leu Ile 295 Pro Pro Phe Gln Cys 300

Arg Arg His Cys Gln 305 Ser Val Ala Met Pro 310 Ile Glu Pro Gly Asp 315

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Gly Gln Arg Arg Gln Trp Glu Arg Ala Gln Ser Arg Arg Ala Phe 35 40 45

Gln Glu Leu Val Leu Glu Pro Ala Gln Arg Arg Ala Arg Leu Glu 50 55 60

Gly Leu Arg Tyr Thr Ala Val Leu Lys Gln Gln Ala Thr Gln His
65 70 75

Ser Met Ala Leu Leu His Trp Gly Ala Leu Trp Arg Gln Leu Ala 80 85 90

Ser Pro Cys Gly Ala Trp Ala Leu Arg Asp Thr Pro Ile Pro Arg 95 100 105

Trp Lys Leu Ser Ser Ala Glu Thr Tyr Ser Arg Met Arg Leu Lys 110 115 120

Leu Val Pro Asn His His Phe Asp Pro His Leu Glu Ala Ser Ala 125 130 135

Leu Arg Asp Asn Leu Gly Glu Val Pro Leu Thr Pro Thr Glu Glu
140 145 150

Ala Ser Leu Pro Leu Ala Val Thr Lys Glu Ala Lys Val Ser Thr 155 160 165

Pro Pro Glu Leu Gln Glu Asp Gln Leu Gly Glu Asp Glu Leu 170 175 180

Ala Glu Leu Glu Thr Pro Met Glu Ala Ala Glu Leu Asp Glu Gln
185 190 195

Arg Glu Lys Leu Val Leu Ser Ala Glu Cys Gln Leu Val Thr Val 200 205 210

Val Ala Val Val Pro Gly Leu Leu Glu Val Thr Thr Gln Asn Val 215 220 225

Tyr Phe Tyr Asp Gly Ser Thr Glu Arg Val Glu Thr Glu Glu Gly 230 235 240

Ile Gly Tyr Asp Phe Arg Arg Pro Leu Ala Gln Leu Arg Glu Val 245 250 255

His Leu Arg Arg Phe Asn Leu Arg Arg Ser Ala Leu Glu Leu Phe 260 265 270

Phe Ile Asp Gln Ala Asn Tyr Phe Leu Asn Phe Pro Cys Lys Val Gly Thr Thr Pro Val Ser Ser Pro Ser Gln Thr Pro Arg Pro Gln Pro Gly Pro Ile Pro Pro His Thr Gln Val Arg Asn Gln Val Tyr 305 310 Ser Trp Leu Leu Arg Leu Arg Pro Pro Ser Gln Gly Tyr Leu Ser 325 Ser Arg Ser Pro Gln Glu Met Leu Arg Ala Ser Gly Leu Thr Gln 340 Lys Trp Val Gln Arg Glu Ile Ser Asn Phe Glu Tyr Leu Met Gln 355 Leu Asn Thr Ile Ala Gly Arg Thr Tyr Asn Asp Leu Ser Gln Tyr 370 Pro Val Phe Pro Trp Val Leu Gln Asp Tyr Val Ser Pro Thr Leu 380 Asp Leu Ser Asn Pro Ala Val Phe Arg Asp Leu Ser Lys Pro Ile Gly Val Val Asn Pro Lys His Ala Gln Leu Val Arg Glu Lys Tyr 410 415 Glu Ser Phe Glu Asp Pro Ala Gly Thr Ile Asp Lys Phe His Tyr 430 Gly Thr His Tyr Ser Asn Ala Ala Gly Val Met His Tyr Leu Ile 445 Arg Val Glu Pro Phe Thr Ser Leu His Val Gln Leu Gln Ser Gly 460 Arg Phe Asp Cys Ser Asp Arg Gln Phe His Ser Val Ala Ala Ala Trp Gln Ala Arg Leu Glu Ser Pro Ala Asp Val Lys Glu Leu Ile 485 Pro Glu Phe Phe Tyr Phe Pro Asp Phe Leu Glu Asn Gln Asn Gly 505 Phe Asp Leu Gly Cys Leu Gln Leu Thr Asn Glu Lys Val Gly Asp 515 525 Val Val Leu Pro Pro Trp Ala Ser Ser Pro Glu Asp Phe Ile Gln 530 Gln His Arg Gln Ala Leu Glu Ser Glu Tyr Val Ser Ala His Leu 550 His Glu Trp Ile Asp Leu Ile Phe Gly Tyr Lys Gln Arg Gly Pro Ala Ala Glu Glu Ala Leu Asn Val Phe Tyr Tyr Cys Thr Tyr Glu 575 580

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Pro Gly Leu Met Cys Val Phe Gln Gly Tyr Ser Ser Lys Gly Leu 35

Ile Gln Arg Ser Val Phe Asn Leu Gln Ile Tyr Gly Val Leu Gly

Leu Phe Trp Thr Leu Asn Trp Val Leu Ala Leu Gly Gln Cys Val 65 75

Leu Ala Gly Ala Phe Ala Ser Phe Tyr Trp Ala Phe His Lys Pro

Gln Asp Ile Pro Thr Phe Pro Leu Ile Ser Ala Phe Ile Arg Thr 100 105

Leu Arg Tyr His Thr Gly Ser Leu Ala Phe Gly Ala Leu Ile Leu 120

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  Leu Asn Arg Asn Ala Tyr Ile Met Ile Ala Ile Tyr Gly Lys Asn
  Phe Cys Val Ser Ala Lys Asn Ala Phe Met Leu Leu Met Arg Asn
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  Ile Val Arg Val Val Val Leu Asp Lys Val Thr Asp Leu Leu
                  200
                                      205
  Phe Phe Gly Lys Leu Leu Val Val Gly Val Gly Val Leu Ser
                  215
  Phe Phe Phe Ser Gly Arg Ile Pro Gly Leu Gly Lys Asp Phe
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  Lys Ser Pro His Leu Asn Tyr Tyr Trp Leu Pro Ile Met Thr Ser
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 Gly Met Cys Val Asp Thr Leu Phe Leu Cys Phe Leu Glu Asp Leu
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 Glu Arg Asn Asn Gly Ser Leu Asp Arg Pro Tyr Tyr Met Ser Lys
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 Ser Leu Leu Lys Ile Leu Gly Lys Lys Asn Glu Ala Pro Pro Asp
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 gcaatatacg ctggttccag tttctgggtg gcaagaactt gaaactgcat 250
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Cys Ala Cys Lys Ile Leu Gln Ala Leu Phe Gln Cys Asp His Val 35 40 45

Gln Tyr Thr Leu Val Pro Val Ser Gly Trp Gln Glu Leu Glu Thr
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Ala Phe Leu Glu His Lys Glu Gln Phe His Tyr Phe Ile Leu Ile
65 70 75

Asn Cys Gly Ala Asn Val Asp Leu Leu Asp Ile Leu Gln Pro Asp 80 85 90

Glu Asp Thr Ile Phe Phe Val Cys Asp Ser His Arg Pro Val Asn 95 100 105

Val Val Asn Val Tyr Asn Asp Thr Gln Ile Lys Leu Leu Ile Lys 110 115 120

Gln Asp Asp Leu Glu Val Pro Ala Tyr Glu Asp Ile Phe Arg 125 130 135

Asp Glu Glu Glu Asp Glu Glu His Ser Gly Asn Asp Ser Asp Gly 140 145 150

Ser Glu Pro Ser Glu Lys Arg Thr Arg Leu Glu Glu Glu Ile Val 155 160 165

Glu Gln Thr Met Arg Arg Arg Gln Arg Arg Glu Trp Glu Ala Arg 170 175 180

Arg Arg Asp Ile Leu Phe Asp Tyr Glu Gln Tyr Glu Tyr His Gly \$185\$ 190 195

Thr Ser Ser Ala Met Val Met Phe Glu Leu Ala Trp Met Leu Ser 200 205 210

Lys Asp Leu Asn Asp Met Leu Trp Trp Ala Ile Val Gly Leu Thr 215 220 225

Asp Gln Trp Val Gln Asp Lys Ile Thr Gln Met Lys Tyr Val Thr 230 235 240

Asp Val Gly Val Leu Gln Arg His Val Ser Arg His Asn His Arg

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Lys	Leu	Trp	Ser	Val 305	His	Gly	Gln	Lys	Arg 310	Leu	Gln	Glu	Phe	Leu 315
Ala	Asp	Met	Gly	Leu 320	Pro	Leu	Lys	Gln	Val 325	Lys	Gln	Lys	Phe	Gln 330
Ala	Met	Asp	Ile	Ser 335	Leu	Lys	Glu	Asn	Leu 340	Arg	Glu	Met	Ile	Glu 345
Glu	Ser	Ala	Asn	Lys 350	Phe	Gly	Met	Lys	Asp 355	Met	Arg	Val	Gln	Thr 360
Phe	Ser	Ile	His	Phe 365	Gly	Phe	Lys	His	Lys 370	Phe	Leu	Ala	Ser	Asp 375
Val	Val	Phe	Ala	Thr 380	Met	Ser	Leu	Met	Glu 385	Ser	Pro	Glu	Lys	Asp 390
Gly	Ser	Gly	Thr	Asp 395	His	Phe	Ile	Gln	Ala 400	Leu	Asp	Ser	Leu	Ser 405
Arg	Ser	Asn	Leu	Asp 410	Lys	Leu	Tyr	His	Gly 415	Leu	Glu	Leu	Ala	Lys 420
Lys	Gln	Leu	Arg	Ala 425	Thr	Gln	Gln	Thr	Ile 430	Ala	Ser	Cys	Leu	Cys 435
Thr	Asn	Leu	Val	Ile 440	Ser	Gln	Gly	Pro	Phe 445	Leu	Tyr	Cys	Ser	Leu 450
Met	Glu	Gly	Thr	Pro 455	Asp	Val	Met	Leu	Phe 460	Ser	Arg	Pro	Ala	Ser 465
Leu	Ser	Leu		Ser 470		His		Leu			Phe	Val	Cys	Ser 480
Thr	Lys	Asn	Arg	Arg 485	Суз	Lys	Leu	Leu	Pro 490	Leu	Val	Met	Ala	Ala 495
Pro	Leu	Ser	Met	Glu 500	His	Gly	Thr	Val	Thr 505	Val	Val	Gly	Ile	Pro 510
Pro	Glu	Thr	Asp	Ser 515	Ser	Asp	Arg	Lys	Asn 520	Phe	Phe	Gly	Arg	Ala 525
Phe	Glu	Lys	Ala	Ala 530	Glu	Ser	Thr	Ser	Ser 535	Arg	Met	Leu	His	Asn 540
His	Phe	Asp	Leu	Ser 545	Val	Ile	Glu	Leu	Lys 550	Ala	Glu	Asp	Arg	Ser 555
Lvs	Phe	Len	Asp	Ala	Len	Tle	Ser	T.e.ii	T.em	Ser				

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  ctcttcgtgg cctcggangt ggatgctctg tgtgcgtgca agatccttca 150
  ggccttgttc cagtgtgacc angtgcaata tangctggtt ccagtttctg 200
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Pro Leu Asp Pro Ala His Val Ser Ser Ala Ser Ser Ser Gly Arg
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Pro His Ala Leu Pro Glu Ile Arg Pro Tyr Ile Asn Ile Thr Ile
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Tyr Met Gly Arg Glu Gly Pro Gln Gly Glu Pro Gly Pro Gln Gly
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Gln Lys Arg Phe Phe Ala Phe Ser Val Gly Arg Lys Thr Ala Leu
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Val Asn Leu Asp Gly Cys Phe Asp Met Ala Thr Gly Gln Phe Ala 155

Ala Pro Leu Arg Gly Ile Tyr Phe Phe Ser Leu Asn Val His Ser 175 180

Trp Asn Tyr Lys Glu Thr Tyr Val His Ile Met His Asn Gln Lys

Glu Ala Val Ile Leu Tyr Ala Gln Pro Ser Glu Arg Ser Ile Met

40

105

200 205 210 Gln Ser Gln Ser Val Met Leu Asp Leu Ala Tyr Gly Asp Arq Val 215 220 225 Trp Val Arg Leu Phe Lys Arg Gln Arg Glu Asn Ala Ile Tyr Ser Asn Asp Phe Asp Thr Tyr Ile Thr Phe Ser Gly His Leu Ile Lys 255 Ala Glu Asp Asp <210> 48 <211> 25 <212> DNA <213> Artificial Sequence <220> <223> Synthetic oligonucleotide probe <400> 48 ccagacgctg ctcttcgaaa gggtc 25 <210> 49 <211> 23 <212> DNA <213> Artificial Sequence <220> <223> Synthetic oligonucleotide probe <400> 49 ggtccccgta ggccaggtcc agc 23 <210> 50 <211> 50 <212> DNA <213> Artificial sequence <220> <223> Synthetic oligonucleotide probe ctacttcttc agcctcaatg tgcacagctg gaattacaag qaqacqtacq 50 <210> 51 <211> 2768 <212> DNA <213> Homo sapiens <400> 51 actegaacge agttgctteg ggacceagga ceceteggg ecegaceege 50 caggaaagac tgaggccgcg gcctgccccg cccggctccc tgcgccgccg 100 ccgcctcccg ggacagaaga tgtgctccag ggtccctctg ctqctqccqc 150 tgctcctgct actggccctg gggcctgggg tgcagggctg cccatccggc 200

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<212> PRT

<213> Homo sapiens

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Ser Gln Pro Gln Thr Val Phe Cys Thr Ala Arg Gln Gly Thr Thr 35 40 45

Val Pro Arg Asp Val Pro Pro Asp Thr Val Gly Leu Tyr Val Phe 50 55 60

Glu Asn Gly Ile Thr Met Leu Asp Ala Gly Ser Phe Ala Gly Leu
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Leu Pro Ser Gly Val Phe Gln Pro Leu Ala Asn Leu Ser Asn Leu

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Ile	Arg	His	Ile	Gln 140	Pro	Gly	Ala	Phe	Asp 145	Thr	Leu	Asp	Arg	Let 15(
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Arg	Pro	Glu	Asp	Leu 260	Ala	Gly	Leu	Ala	Ala 265	Leu	Gln	Glu	Leu	Asp 270
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Thr	Arg	Pro	Val	Val 365	Arg	Glu	Pro	Thr	Ala 370	Leu	Ser	Ser	Ser	Let 375
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Glu	Gly	Asn	Leu	Pro 575	Leu	Leu	Ile	Ala	Pro 580	Ala	Leu	Ala	Ala	Val 585
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Arg	Gly	Arg	Ala	Met 605	Ala	Ala	Ala	Ala	Gln 610	Asp	Lys	Gly	Gln	Val 615
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Leu	Glu	Pro	Gly	Pro 635	Lys	Ala	Thr	Glu	Gly 640	Gly	Gly	Glu	Ala	Leu 645
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65 70 75

Val Leu Ile Leu Cys His Asn Arg Ile Gln Gln Leu Asp Leu Lys 80 85 90

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Asr	Ar	g Le	u Ly	s Se	r Val	l Thr	Tr	э Туі	r Leu 115		ı Ala	Gl	/ Le	1 Arg 120
Tyr	: Let	ı Ası	o Lei	Se:	r Phe	e Asn	n Asr	Ph∈	e Asp 130		Met	. Pro	) Ile	e Cys 135
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Glu	Glu	ı Gly	7 Sei	Leu 185	Pro	) Ile	Leu	. Asn	Thr 190	Thr	Lys	Leu	His	Ile 195
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765

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Asn Lys Lys Val Met Arg Thr Lys Ser Ser Glu Lys Ala Ala Asn 110 115 120

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Cys Pro Pro Leu Gly Leu Glu Thr Leu Lys Ile Thr Asp Phe Gln 140 145 150

Leu His Ala Ser Thr Val Lys Arg Tyr Gly Leu Gly Ala His Arg 155 160 165

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Asp Gly Ala Trp Cys Ala Gly Arg Asn Asp Leu Gln Gln Trp Ile

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His	Thr	Glu	Asp	Phe 575	Gln	Lys	Glu	Glu	Gly 580	Thr	Val	Asn	Gly	Ala 585
Ser	Trp	His	Thr	Val 590	Ala	Gly	Ser	Leu	Asn 595	Asp	Phe	Ser	Tyr	Leu 600
His	Thr	Asn	Cys	Phe 605	Glu	Leu	Ser	Ile	Tyr 610	Val	Gly	Cys	Asp	Lys 615
Tyr	Pro	His	Glu	Ser 620	Gln	Leu	Pro	Glu	Glu 625	Trp	Glu	Asn	Asn	Arg 630
Glu	Ser	Leu	Ile	Val 635	Phe	Met	Glu	Gln	Val 640	His	Arg	Gly	Ile	Lys 645
Gly	Leu	Val	Arg	Asp 650	Ser	His	Gly	Lys	Gly 655	Ile	Pro	Asn	Ala	Ile 660
Ile	Ser	Val	Glu	Gly 665	Ile	Asn	His	Asp	Ile 670	Arg	Thr	Ala	Asn	Asp 675
Gly	Asp	Tyr	Trp	Arg 680	Leu	Leu	Asn	Pro	Gly 685	Glu	Tyr	Val	Val	Thr 690
Ala	Lys	Ala	Glu	Gly 695	Phe	Thr	Ala	Ser	Thr 700	Lys	Asn	Cys	Met	Val 705
Gly	Tyr	Asp	Met	Gly 710	Ala	Thr	Arg	Cys	Asp 715	Phe	Thr	Leu	Ser	Lys 720
Thr	Asn	Met	Ala	Arg 725	Ile	Arg	Glu	Ile	Met 730	Glu	Lys	Phe	Gly	Lys 735
Gln	Pro	Val	Ser	Leu 740	Pro	Ala	Arg	Arg	Leu 745	Lys	Leu	Arg	Gly	Arg 750
Lys	Arg	Arg	Gln	Arg 755	Gly									
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<211> 50
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic oligonucleotide probe
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<210> 66
<211> 2854
<212> DNA
<213> Homo sapiens
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cccagccccg gcttcagctc tttcccaggt gttgactcca gctccagctt 150
 cagetecage tecaggtegg getecagete cageegeage ttaggeageg 200
gaggttctgt gtcccagttg ttttccaatt tcaccggctc cgtggatgac 250
cgtgggacct gccagtgctc tgtttccctg ccagacacca cctttcccgt 300
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cttggtagag aagcttgaga cactagacaa aaacaatgtc cttgccattc 650
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tggtcatggt ggtgtggtga acatcagcaa accgtctgtg gttcagctca 800
actggagagg gttttcttat ctatatggtg cttggggtag ggattactct 850
ccccagcatc caaacaaagg actgtattgg gtggcgccat tgaatacaga 900
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<210> 67

<211> 510

<212> PRT

<213> Homo sapiens

<400> 67

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Gly Gln Ala Ala Gly Asp Leu Gly Asp Val Gly Pro Pro Ile Pro 20 25 30

Ser Pro Gly Phe Ser Ser Phe Pro Gly Val Asp Ser Ser Ser Ser 35 40 45

Phe Ser Ser Ser Ser Arg Ser Gly Ser Ser Ser Ser Arg Ser Leu 50 55 60

Gly Ser Gly Gly Ser Val Ser Gln Leu Phe Ser Asn Phe Thr Gly 65 70 75

Ser Val Asp Asp Arg Gly Thr Cys Gln Cys Ser Val Ser Leu Pro 80 85 90

Asp Thr Thr Phe Pro Val Asp Arg Val Glu Arg Leu Glu Phe Thr 95 100 105

Ala His Val Leu Ser Gln Lys Phe Glu Lys Glu Leu Ser Lys Val 110 115 120

Arg Glu Tyr Val Gln Leu Ile Ser Val Tyr Glu Lys Lys Leu Leu 125 130 135

Asn Leu Thr Val Arg Ile Asp Ile Met Glu Lys Asp Thr Ile Ser 140 145 150

Tyr Thr Glu Leu Asp Phe Glu Leu Ile Lys Val Glu Val Lys Glu
155 160 165

Met Glu Lys Leu Val Ile Gln Leu Lys Glu Ser Phe Gly Gly Ser 170 175

Ser Glu Ile Val Asp Gln Leu Glu Val Glu Ile Arg Asn Met Thr 185 190 190

Leu Leu Val Glu Lys Leu Glu Thr Leu Asp Lys Asn Asn Val Leu 200 205 210

Ala Ile Arg Arg Glu Ile Val Ala Leu Lys Thr Lys Leu Lys Glu Cys Glu Ala Ser Lys Asp Gln Asn Thr Pro Val Val His Pro Pro Pro Thr Pro Gly Ser Cys Gly His Gly Gly Val Val Asn Ile Ser 245 Lys Pro Ser Val Val Gln Leu Asn Trp Arg Gly Phe Ser Tyr Leu Tyr Gly Ala Trp Gly Arg Asp Tyr Ser Pro Gln His Pro Asn Lys 275 Gly Leu Tyr Trp Val Ala Pro Leu Asn Thr Asp Gly Arg Leu Leu 295 Glu Tyr Tyr Arg Leu Tyr Asn Thr Leu Asp Asp Leu Leu Leu Tyr 310 Ile Asn Ala Arg Glu Leu Arg Ile Thr Tyr Gly Gln Gly Ser Gly Thr Ala Val Tyr Asn Asn Met Tyr Val Asn Met Tyr Asn Thr 335 Gly Asn Ile Ala Arg Val Asn Leu Thr Thr Asn Thr Ile Ala Val 350 355 Thr Gln Thr Leu Pro Asn Ala Ala Tyr Asn Asn Arg Phe Ser Tyr 365 Ala Asn Val Ala Trp Gln Asp Ile Asp Phe Ala Val Asp Glu Asn 385 Gly Leu Trp Val Ile Tyr Ser Thr Glu Ala Ser Thr Gly Asn Met 400 Val Ile Ser Lys Leu Asn Asp Thr Thr Leu Gln Val Leu Asn Thr Trp Tyr Thr Lys Gln Tyr Lys Pro Ser Ala Ser Asn Ala Phe Met Val Cys Gly Val Leu Tyr Ala Thr Arg Thr Met Asn Thr Arg Thr 445 Glu Glu Ile Phe Tyr Tyr Tyr Asp Thr Asn Thr Gly Lys Glu Gly 455 460 Lys Leu Asp Ile Val Met His Lys Met Gln Glu Lys Val Gln Ser 475 Ile Asn Tyr Asn Pro Phe Asp Gln Lys Leu Tyr Val Tyr Asn Asp 485 490 Gly Tyr Leu Leu Asn Tyr Asp Leu Ser Val Leu Gln Lys Pro Gln

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<211> 410

<212> DNA

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<220>
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<222> 206, 217, 387
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 cttatctata tggtgcttgg ggtagggatt actctcccca gcatccaaac 200
 aaaggnatgt attgggnggc gccattgaat acagatggga gactgttgga 250
 gtattataga ctgtacaacc cactggatga tttgctattg tatataaatg 300
 ctcgagagtt gcggatcacc tatggccaag gtagtggtac agcagtttac 350
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 taacctgacc 410
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<211> 24
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<213> Artificial Sequence
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<223> Synthetic oligonucleotide probe
<400> 69
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<210> 70
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ctaccttggc cataggtgat ccgc 24
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catcagcaaa ccgtctgtgg ttcagctcaa ctggagaggg tt 42
<210> 72
<211> 3127
<212> DNA
<213> Homo sapiens
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<400> 72

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<211> 453
<212> PRT
<213> Homo sapiens
<400> 73
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Ser Gly Asn Asn Ser Thr Val Thr Arg Leu Ile Tyr Ala Leu Phe
Leu Leu Val Gly Val Cys Val Ala Cys Val Met Leu Ile Pro Gly
Met Glu Glu Gln Leu Asn Lys Ile Pro Gly Phe Cys Glu Asn Glu
Lys Gly Val Val Pro Cys Asn Ile Leu Val Gly Tyr Lys Ala Val
Tyr Arg Leu Cys Phe Gly Leu Ala Met Phe Tyr Leu Leu Ser
Leu Leu Met Ile Lys Val Lys Ser Ser Ser Asp Pro Arg Ala Ala
                 110
                                     115
Val His Asn Gly Phe Trp Phe Phe Lys Phe Ala Ala Ala Ile Ala
                                     130
Ile Ile Ile Gly Ala Phe Phe Ile Pro Glu Gly Thr Phe Thr Thr
Val Trp Phe Tyr Val Gly Met Ala Gly Ala Phe Cys Phe Ile Leu
                                     160
Ile Gln Leu Val Leu Leu Ile Asp Phe Ala His Ser Trp Asn Glu
                                     175
                                                         180
Ser Trp Val Glu Lys Met Glu Glu Gly Asn Ser Arg Cys Trp Tyr
Ala Ala Leu Leu Ser Ala Thr Ala Leu Asn Tyr Leu Leu Ser Leu
                                    205
Val Ala Ile Val Leu Phe Phe Val Tyr Tyr Thr His Pro Ala Ser
                215
Cys Ser Glu Asn Lys Ala Phe Ile Ser Val Asn Met Leu Leu Cys
                230
                                    235
Val Gly Ala Ser Val Met Ser Ile Leu Pro Lys Ile Gln Glu Ser
                245
                                    250
Gln Pro Arg Ser Gly Leu Leu Gln Ser Ser Val Ile Thr Val Tyr
Thr Met Tyr Leu Thr Trp Ser Ala Met Thr Asn Glu Pro Glu Thr
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280

275

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Asn Cys Asn Pro Ser Leu Leu Ser Ile Ile Gly Tyr Asn Thr Thr
                 290
Ser Thr Val Pro Lys Glu Gly Gln Ser Val Gln Trp Trp His Ala
Gln Gly Ile Ile Gly Leu Ile Leu Phe Leu Leu Cys Val Phe Tyr
                320
Ser Ser Ile Arg Thr Ser Asn Asn Ser Gln Val Asn Lys Leu Thr
                335
                                     340
Leu Thr Ser Asp Glu Ser Thr Leu Ile Glu Asp Gly Gly Ala Arg
                350
                                     355
Ser Asp Gly Ser Leu Glu Asp Gly Asp Asp Val His Arg Ala Val
                                     370
Asp Asn Glu Arg Asp Gly Val Thr Tyr Ser Tyr Ser Phe Phe His
                380
                                     385
Phe Met Leu Phe Leu Ala Ser Leu Tyr Ile Met Met Thr Leu Thr
                                     400
                                                         405
Asn Trp Ser Arg Tyr Glu Pro Ser Arg Glu Met Lys Ser Gln Trp
Thr Ala Val Trp Val Lys Ile Ser Ser Ser Trp Ile Gly Ile Val
                425
                                     430
Leu Tyr Val Trp Thr Leu Val Ala Pro Leu Val Leu Thr Asn Arg
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Asp Phe Asp

<210> 74

<211> 480

<212> DNA

<213> Homo sapiens

440

<220>

<221> unsure

<222> 48, 163

<223> unknown base

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ataeeatgtt tgtgtggaag tgeeeegtgt ttgetatgee gatgetgtee 150
tagtggaaac aanteeactg taaetagatt gatetatgea ettttettge 200
ttgttggagt atgtgtaget tgtgtaatgt tgataeeagg aatggaagaa 250
caaetgaata agatteetgg attttgtgag aatggaaaag gtgttgteee 300
ttgtaaeatt ttggttgget ataaegetgt atategtttg tgetttggtt 350
tggetatgtt etatettett eteetttae taatgateaa agtgaagagt 400

445

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tgctgcagca attgcaatta ttattggggc 480
<210> 75
<211> 438
<212> DNA
<213> Homo sapiens
<220>
<221> unsure
<222> 32, 65, 92, 121, 142, 154, 170, 293, 315, 323
<223> unknown base
<400> 75
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 tgctgtccta gtggaaacaa ntccactgta attagattga tntatgcact 150
 tttnttgctt gttggagtan gtgtagcttg tgtaatgttg ataccaggaa 200
 tggaagaaca actgaataag attcctggat tttgtgagaa tgagaaaggt 250
 gttgtccctt gtaacatttt ggttggctat aaagctgtat atngtttgtg 300
 ctttggtttg gctangttct atnttcttct ctctttacta atgatcaaag 350
 tgaagagtag cagtgatcct agagctgcag tgcacaatgg attttggttt 400
 tttaaatttg ctgcagcaat tgcaattatt attggggc 438
<210> 76
<211> 473
<212> DNA
<213> Homo sapiens
<220>
<221> unsure
<222> 48
<223> unknown base
<400> 76
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gtttgtgtgg aagtgccccg tgtttgctat gccgatgctg tcctagtgga 150
aacaactcca ctgtaactag attgatctat gcacttttct tgcttgttgg 200
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ataagattcc tggattttgt gagaatgaga aaggtgttgt cccttgtaac 300
attittggttg gctataaagc tgtatatcgt ttgtgctttg gtttggctat 350
gttctatctt cttctcttt tactaatgat caaagtgaag agtagcagtg 400
atcctagage tgcagtgcac aatggatttt ggttctttaa atttgctgca 450
gcaattgcaa ttattattgg ggc 473
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agcagtgatc ctagagctgc agtgcacaat ggattttggt tctttaaatt 450

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<210> 77
 <211> 666
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> unsure
 <222> 21, 111
 <223> unknown base
 <400> 77
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  actttttcct tgcttgttgg agtatgtgta gctttgtgta atgttgttcc 100
  caggattgga ngaacaactg aataagattc ctggattttt gtgagaatga 150
  gaaaggtgtt gtccccttgt aacatttttg gttggctata aagctgtata 200
  tcgtttgtgc tttggtttgg ctatgttcta tcttcttctc tctttactaa 250
  tgatcaaagt gaagagtagc agtgatccta gagctgcagt gcacaatgga 300
 ttttggttct ttaaatttgc tgcagcaatt gcaattatta ttggggcatt 350
 cttcattcca gaaggaactt ttacaactgt gtggttttat gtaggcatgg 400
 caggtgcctt ttgtttcatc ctcatacaac tagtcttact tattgatttt 450
 gcacattcat ggaatgaatc gtgggttgaa aaaatggaag aagggaactc 500
 gagatgttgg tatgcagcct tgttatcagc tacagctctg aattatctgc 550
 tgtctttagt tgctatcgtc ctgttctttg tctactacac tcatccagcc 600
 agttgttcag aaaacaaggc gttcatcagt gtcaacatgc tcctctgcgt 650
 tggtgcttct gtaatg 666
<210> 78
<211> 22
<212> DNA
<213> Artificial Sequence
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<400> 78
 atgtttgtgt ggaagtgccc cg 22
<210> 79
<211> 18
<212> DNA
<213> Artificial Sequence
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<400> 79
gtcaacatgc tcctctgc 18
<210> 80
<211> 26
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<213> Artificial Sequence
<223> Synthetic oligonucleotide probe
<400> 80
 aatccattgt gcactgcagc tctagg 26
<210> 81
<211> 23
<212> DNA
<213> Artificial Sequence
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<400> 81
 gagcatgcca ccactggact gac 23
<210> 82
<211> 54
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic oligonucleotide probe
<400> 82
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 gcac 54
<210> 83
<211> 3906
<212> DNA
<213> Homo sapiens
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<210> 84

<211> 867

<212> PRT

<213> Homo sapiens

<400> 84

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Phe Ser Leu Leu Gly Gly Ser Ser Ala Phe Leu Ser His His Arg
20 25 30

Leu Lys Gly Arg Phe Gln Arg Asp Arg Arg Asn Ile Arg Pro Asn 35 40 45

Ile Ile Leu Val Leu Thr Asp Asp Gln Asp Val Glu Leu Gly Ser 50 55 60

Met Gln Val Met Asn Lys Thr Arg Arg Ile Met Glu Gln Gly Gly 65 70 75

Ala His Phe Ile Asn Ala Phe Val Thr Thr Pro Met Cys Cys Pro 80 85 90

Ser Arg Ser Ser Ile Leu Thr Gly Lys Tyr Val His Asn His Asn 95  $\phantom{000}100\phantom{000}$  105

Thr Tyr Thr Asn Asn Glu Asn Cys Ser Ser Pro Ser Trp Gln Ala 110 115 120

Gln His Glu Ser Arg Thr Phe Ala Val Tyr Leu Asn Ser Thr Gly 125 130 135

Tyr Arg Thr Ala Phe Phe Gly Lys Tyr Leu Asn Glu Tyr Asn Gly 140 145 150

Ser Tyr Val Pro Pro Gly Trp Lys Glu Trp Val Gly Leu Leu Lys 155 160 165

Asn Ser Arg Phe Tyr Asn Tyr Thr Leu Cys Arg Asn Gly Val Lys 170 175 180

Glu Lys His Gly Ser Asp Tyr Ser Lys Asp Tyr Leu Thr Asp Leu 185 190 195

Ile Thr Asn Asp Ser Val Ser Phe Phe Arg Thr Ser Lys Lys Met 200 205 210

Tyr Pro His Arg Pro Val Leu Met Val Ile Ser His Ala Ala Pro 215 220 225

His Gly Pro Glu Asp Ser Ala Pro Gln Tyr Ser Arg Leu Phe Pro 230 235 240

Asn Ala Ser Gln His Ile Thr Pro Ser Tyr Asn Tyr Ala Pro Asn 245 250 255

Pro Asp Lys His Trp Ile Met Arg Tyr Thr Gly Pro Met Lys Pro Ile His Met Glu Phe Thr Asn Met Leu Gln Arg Lys Arg Leu Gln 275 280 Thr Leu Met Ser Val Asp Asp Ser Met Glu Thr Ile Tyr Asn Met Leu Val Glu Thr Gly Glu Leu Asp Asn Thr Tyr Ile Val Tyr Thr Ala Asp His Gly Tyr His Ile Gly Gln Phe Gly Leu Val Lys Gly 320 325 330 Lys Ser Met Pro Tyr Glu Phe Asp Ile Arg Val Pro Phe Tyr Val Arg Gly Pro Asn Val Glu Ala Gly Cys Leu Asn Pro His Ile Val 355 Leu Asn Ile Asp Leu Ala Pro Thr Ile Leu Asp Ile Ala Gly Leu 365 370 Asp Ile Pro Ala Asp Met Asp Gly Lys Ser Ile Leu Lys Leu Leu Asp Thr Glu Arg Pro Val Asn Arg Phe His Leu Lys Lys Met Arg Val Trp Arg Asp Ser Phe Leu Val Glu Arg Gly Lys Leu Leu 415 His Lys Arg Asp Asn Asp Lys Val Asp Ala Gln Glu Glu Asn Phe 430 Leu Pro Lys Tyr Gln Arg Val Lys Asp Leu Cys Gln Arg Ala Glu 440 445 Tyr Gln Thr Ala Cys Glu Gln Leu Gly Gln Lys Trp Gln Cys Val Glu Asp Ala Thr Gly Lys Leu Lys Leu His Lys Cys Lys Gly Pro Met Arg Leu Gly Gly Ser Arg Ala Leu Ser Asn Leu Val Pro Lys 490 Tyr Tyr Gly Gln Gly Ser Glu Ala Cys Thr Cys Asp Ser Gly Asp Tyr Lys Leu Ser Leu Ala Gly Arg Arg Lys Lys Leu Phe Lys Lys 520 Lys Tyr Lys Ala Ser Tyr Val Arg Ser Arg Ser Ile Arg Ser Val Ala Ile Glu Val Asp Gly Arg Val Tyr His Val Gly Leu Gly Asp Ala Ala Gln Pro Arg Asn Leu Thr Lys Arg His Trp Pro Gly Ala 560

565

Pro Glu Asp Gln Asp Asp Lys Asp Gly Gly Asp Phe Ser Gly Thr Gly Gly Leu Pro Asp Tyr Ser Ala Ala Asn Pro Ile Lys Val Thr 590 595 His Arg Cys Tyr Ile Leu Glu Asn Asp Thr Val Gln Cys Asp Leu 610 Asp Leu Tyr Lys Ser Leu Gln Ala Trp Lys Asp His Lys Leu His Ile Asp His Glu Ile Glu Thr Leu Gln Asn Lys Ile Lys Asn Leu Arg Glu Val Arg Gly His Leu Lys Lys Lys Arg Pro Glu Glu Cys 650 655 Asp Cys His Lys Ile Ser Tyr His Thr Gln His Lys Gly Arg Leu Lys His Arg Gly Ser Ser Leu His Pro Phe Arg Lys Gly Leu Gln Glu Lys Asp Lys Val Trp Leu Leu Arg Glu Gln Lys Arg Lys 700 695 Lys Leu Arg Lys Leu Leu Lys Arg Leu Gln Asn Asn Asp Thr Cys Ser Met Pro Gly Leu Thr Cys Phe Thr His Asp Asn Gln His Trp 730 Gln Thr Ala Pro Phe Trp Thr Leu Gly Pro Phe Cys Ala Cys Thr 740 745 Ser Ala Asn Asn Asn Thr Tyr Trp Cys Met Arg Thr Ile Asn Glu Thr His Asn Phe Leu Phe Cys Glu Phe Ala Thr Gly Phe Leu Glu Tyr Phe Asp Leu Asn Thr Asp Pro Tyr Gln Leu Met Asn Ala Val Asn Thr Leu Asp Arg Asp Val Leu Asn Gln Leu His Val Gln Leu 805 Met Glu Leu Arg Ser Cys Lys Gly Tyr Lys Gln Cys Asn Pro Arg Thr Arg Asn Met Asp Leu Asp Gly Gly Ser Tyr Glu Gln Tyr Arg 830 835 Gln Phe Gln Arg Arg Lys Trp Pro Glu Met Lys Arg Pro Ser Ser Lys Ser Leu Gly Gln Leu Trp Glu Gly Trp Glu Gly

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<sup>&</sup>lt;211> 19

<sup>&</sup>lt;212> DNA

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<400> 86
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cactgggaca actgtggg 18
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 gtggcggtcc tgctgctgct gctgctgctg gccacctgcc ttttccacgg 200
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 atctttcacc atcaccgtca tcctggccac gtatctcatg tgccgaatgt 350
 gggcctccac caccaccacc accccgcca cacccctcac cacctccacc 400
 accaccacca ccccaccgc caccatcccc gccacgctcg ctgaggctgc 450
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 caggacaagt ggaccccatg tttccatgtg gaaggatgca tctctggggt 550
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<210> 95

<211> 115

<212> PRT

<213> Homo sapiens

<400> 95

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Gly Ala Ala Val Ala Val Leu Leu Leu Leu Leu Leu Leu Ala Thr 20 25 30

Cys Leu Phe His Gly Arg Gln Asp Cys Asp Val Glu Arg Asn Arg 35 40 45

Thr Ala Ala Gly Gly Asn Arg Val Arg Arg Ala Gln Pro Trp Pro 50 55 60

Phe Arg Arg Gly His Leu Gly Ile Phe His His Arg His
65 70 75

Pro Gly His Val Ser His Val Pro Asn Val Gly Leu His His 80 85 90

His His Pro Arg His Thr Pro His His Leu His His His His 105

Pro His Arg His His Pro Arg His Ala Arg 110 115

<210> 96

<211> 1312

<212> DNA

<213> Homo sapiens

<400> 96

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gctgacgctg ctggcctttg ccgggtactc agggctactg gctggggtgg 150
aagtgagtgc tgggtcaccc cccatccgca acgtcactgt ggcctacaag 200
ttccacatgg ggctctatgg tgagactggg cggctttca ctgagagctg 250
cagcatctct cccaagctcc gctccatcgc tgtctactat gacaaccccc 300

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<210> 97

<211> 313

<212> PRT

<213> Homo sapiens

<400> 97

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Leu Ala Gly Val Glu Val Ser Ala Gly Ser Pro Pro Ile Arg Asn
35
40

Val Thr Val Ala Tyr Lys Phe His Met Gly Leu Tyr Gly Glu Thr
50 55 60

Gly Arg Leu Phe Thr Glu Ser Cys Ser Ile Ser Pro Lys Leu Arg
65 70 75

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Ser Ile Ala Val Tyr Tyr Asp Asn Pro His Met Val Pro Pro Asp
                  80
Lys Cys Arg Cys Ala Val Gly Ser Ile Leu Ser Glu Gly Glu Glu
Ser Pro Ser Pro Glu Leu Ile Asp Leu Tyr Gln Lys Phe Gly Phe
                 110
                                     115
Lys Val Phe Ser Phe Pro Ala Pro Ser His Val Val Thr Ala Thr
                                     130
Phe Pro Tyr Thr Thr Ile Leu Ser Ile Trp Leu Ala Thr Arg Arg
                 140
                                     145
Val His Pro Ala Leu Asp Thr Tyr Ile Lys Glu Arg Lys Leu Cys
Ala Tyr Pro Arg Leu Glu Ile Tyr Gln Glu Asp Gln Ile His Phe
                                     175
Met Cys Pro Leu Ala Arg Gln Gly Asp Phe Tyr Val Pro Glu Met
Lys Glu Thr Glu Trp Lys Trp Arg Gly Leu Val Glu Ala Ile Asp
                                     205
Thr Gln Val Asp Gly Thr Gly Ala Asp Thr Met Ser Asp Thr Ser
                215
                                     220
Ser Val Ser Leu Glu Val Ser Pro Gly Ser Arg Glu Thr Ser Ala
                230
Ala Thr Leu Ser Pro Gly Ala Ser Ser Arg Gly Trp Asp Asp Gly
                                     250
                                                         255
Asp Thr Arg Ser Glu His Ser Tyr Ser Glu Ser Gly Ala Ser Gly
                260
                                     265
Ser Ser Phe Glu Glu Leu Asp Leu Glu Gly Glu Gly Pro Leu Gly
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Trp Leu Trp Glu Pro Thr Ala Pro Glu Lys Gly Lys Glu
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<210> 98

<211> 725

<212> DNA

<213> Homo sapiens

305

<400> 98

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310

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<213> Homo sapiens

<400> 99

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Leu Leu Leu Ser Ala Ala Val Cys Arg Ala Glu Ala Gly Leu Glu 30

Thr Glu Ser Pro Val Arg Thr Leu Gln Val Glu Thr Leu Val Glu

Pro Pro Glu Pro Cys Ala Glu Pro Ala Ala Phe Gly Asp Thr Leu

His Ile His Tyr Thr Gly Ser Leu Val Asp Gly Arg Ile Ile Asp

Thr Ser Leu Thr Arg Asp Pro Leu Val Ile Glu Leu Gly Gln Lys

Gln Val Ile Pro Gly Leu Glu Gln Ser Leu Leu Asp Met Cys Val 95 100

Gly Glu Lys Arg Arg Ala Ile Ile Pro Ser His Leu Ala Tyr Gly

Lys Arg Gly Phe Pro Pro Ser Val Pro Ala Asp Ala Val Val Gln 130 135

Tyr Asp Val Glu Leu Ile Ala Leu Ile Arg Ala Asn Tyr Trp Leu 140

Lys Leu Val Lys Gly Ile Leu Pro Leu Val Gly Met Ala Met Val 165

Pro Ala Leu Leu Gly Leu Ile Gly Tyr His Leu Tyr Arg Lys Ala 170

Asn Arg Pro Lys Val Ser Lys Lys Lys Leu Lys Glu Glu Lys Arg

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185 190 195

Asn Lys Ser Lys Lys Lys 200

<210> 100 <211> 705

<211> 703 <212> DNA

<213> Homo sapiens

<400> 100

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cgcttcacat acactacacg ggaagcttgg tagatggacg tattattgac 300
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<210> 101

<211> 543

<212> DNA

<213> Homo sapiens

<400> 101

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ggtgccagcc ctcctgggcc tcattgggta tcacctatac agaaaggcca 450 atagacccaa agtctccaaa aagaagctca aggaagagaa acgaaacaag 500 agcaaaaaga aataataaat aataaatttt aaaaaactta aaa 543

<210> 102

<211> 1316

<212> DNA

<213> Homo sapiens

<400> 102

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<211> 157

<212> PRT

<213> Homo sapiens

<400> 103

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Leu Phe Phe Thr Gly Trp Trp Ile Ile Ile Asp Ala Ala Val Ile
35 40 45

Tyr Pro Thr Met Lys Asp Phe Asn His Ser Tyr His Ala Cys Gly 50 55 60

Val Ile Ala Thr Ile Ala Phe Leu Met Ile Asn Ala Val Ser Asn
65 70 75

Gly Gln Val Arg Gly Asp Ser Tyr Ser Glu Gly Cys Leu Gly Gln 80 85 90

Thr Gly Ala Arg Ile Trp Leu Phe Val Gly Phe Met Leu Ala Phe 95 100 105

Gly Ser Leu Ile Ala Ser Met Trp Ile Leu Phe Gly Gly Tyr Val 110 115 120

Ala Lys Glu Lys Asp Ile Val Tyr Pro Gly Ile Ala Val Phe Phe 125 130 135

Gln Asn Ala Phe Ile Phe Phe Gly Gly Leu Val Phe Lys Phe Gly 140 145 150

Arg Thr Glu Asp Leu Trp Gln 155

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<211> 545

<212> DNA

<213> Homo sapiens

<400> 104

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<223> unknown base
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 acagggtggt ggattatcat agatqcaqct qttatttatc ccaccatqaa 200
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<210> 113

<211> 610

<212> PRT

<213> Homo sapiens

<400> 113

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Val Leu Cys Lys Val Tyr Leu Gly Leu Phe Ser Gly Ser Ser Pro 20 25 30

Asn Pro Phe Ser Glu Asp Val Lys Arg Pro Pro Ala Pro Leu Val 35 40 45

Thr Asp Lys Glu Ala Arg Lys Lys Val Leu Lys Gln Ala Phe Ser
50 55 60

Ala Asn Gln Val Pro Glu Lys Leu Asp Val Val Val Ile Gly Ser 65 70 75

Gly Phe Gly Gly Leu Ala Ala Ala Ala Ile Leu Ala Lys Ala Gly 80 85 90

Lys Arg Val Leu Val Leu Glu Gln His Thr Lys Ala Gly Gly Cys 95 100 105

Cys His Thr Phe Gly Lys Asn Gly Leu Glu Phe Asp Thr Gly Ile His Tyr Ile Gly Arg Met Glu Glu Gly Ser Ile Gly Arg Phe Ile Leu Asp Gln Ile Thr Glu Gly Gln Leu Asp Trp Ala Pro Leu Ser Ser Pro Phe Asp Ile Met Val Leu Glu Gly Pro Asn Gly Arg Lys 155 160 Glu Tyr Pro Met Tyr Ser Gly Glu Lys Ala Tyr Ile Gln Gly Leu Lys Glu Lys Phe Pro Gln Glu Glu Ala Ile Ile Asp Lys Tyr Ile Lys Leu Val Lys Val Val Ser Ser Gly Ala Pro His Ala Ile Leu 200 Leu Lys Phe Leu Pro Leu Pro Val Val Gln Leu Leu Asp Arg Cys 220 Gly Leu Leu Thr Arg Phe Ser Pro Phe Leu Gln Ala Ser Thr Gln Ser Leu Ala Glu Val Leu Gln Gln Leu Gly Ala Ser Ser Glu Leu Gln Ala Val Leu Ser Tyr Ile Phe Pro Thr Tyr Gly Val Thr Pro 260 265 Asn His Ser Ala Phe Ser Met His Ala Leu Leu Val Asn His Tyr 275 280 Met Lys Gly Gly Phe Tyr Pro Arg Gly Gly Ser Ser Glu Ile Ala Phe His Thr Ile Pro Val Ile Gln Arg Ala Gly Gly Ala Val Leu 310 Thr Lys Ala Thr Val Gln Ser Val Leu Leu Asp Ser Ala Gly Lys Ala Cys Gly Val Ser Val Lys Lys Gly His Glu Leu Val Asn Ile 335 340 Tyr Cys Pro Ile Val Val Ser Asn Ala Gly Leu Phe Asn Thr Tyr 355 360 Glu His Leu Leu Pro Gly Asn Ala Arg Cys Leu Pro Gly Val Lys 365 370 Gln Gln Leu Gly Thr Val Arg Pro Gly Leu Gly Met Thr Ser Val 380 385 Phe Ile Cys Leu Arg Gly Thr Lys Glu Asp Leu His Leu Pro Ser 400 Thr Asn Tyr Tyr Val Tyr Tyr Asp Thr Asp Met Asp Gln Ala Met 415

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Pro Leu Leu Phe Phe Ala Phe Pro Ser Ala Lys Asp Pro Thr Trp
Glu Asp Arg Phe Pro Gly Arg Ser Thr Met Ile Met Leu Ile Pro
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Thr Ala Tyr Glu Trp Phe Glu Glu Trp Gln Ala Glu Leu Lys Gly
                                    475
Lys Arg Gly Ser Asp Tyr Glu Thr Phe Lys Asn Ser Phe Val Glu
                                    490
Ala Ser Met Ser Val Val Leu Lys Leu Phe Pro Gln Leu Glu Gly
                500
                                    505
Lys Val Glu Ser Val Thr Ala Gly Ser Pro Leu Thr Asn Gln Phe
                515
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Tyr Leu Ala Ala Pro Arg Gly Ala Cys Tyr Gly Ala Asp His Asp
Leu Gly Arg Leu His Pro Cys Val Met Ala Ser Leu Arg Ala Gln
Ser Pro Ile Pro Asn Leu Tyr Leu Thr Gly Gln Asp Ile Phe Thr
                560
                                    565
Cys Gly Leu Val Gly Ala Leu Gln Gly Ala Leu Leu Cys Ser Ser
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Ala Ile Leu Lys Arg Asn Leu Tyr Ser Asp Leu Lys Asn Leu Asp
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Ser Arg Ile Arg Ala Gln Lys Lys Asn
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<210> 114

<211> 1701

<212> DNA

<213> Homo sapiens

605

## <400> 114

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<sup>&</sup>lt;210> 115

<sup>&</sup>lt;211> 301

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Homo sapiens

<sup>&</sup>lt;400> 115

Met Arg Val Arg Ile Gly Leu Thr Leu Leu Cys Ala Val Leu 1 5 10 15

Leu Ser Leu Ala Ser Ala Ser Ser Asp Glu Glu Gly Ser Gln Asp 20 25 30

Glu Ser Leu Asp Ser Lys Thr Thr Leu Thr Ser Asp Glu Ser Val Lys Asp His Thr Thr Ala Gly Arg Val Val Ala Gly Gln Ile Phe Leu Asp Ser Glu Glu Ser Glu Leu Glu Ser Ser Ile Gln Glu Glu Glu Asp Ser Leu Lys Ser Gln Glu Gly Glu Ser Val Thr Glu Asp Ile Ser Phe Leu Glu Ser Pro Asn Pro Glu Asn Lys Asp Tyr Glu Glu Pro Lys Lys Val Arg Lys Pro Ala Leu Thr Ala Ile Glu Gly 110 115 Thr Ala His Gly Glu Pro Cys His Phe Pro Phe Leu Phe Leu Asp Lys Glu Tyr Asp Glu Cys Thr Ser Asp Gly Arg Glu Asp Gly Arg Leu Trp Cys Ala Thr Thr Tyr Asp Tyr Lys Ala Asp Glu Lys Trp 155 160 Gly Phe Cys Glu Thr Glu Glu Glu Ala Ala Lys Arg Arg Gln Met 170 Gln Glu Ala Glu Met Met Tyr Gln Thr Gly Met Lys Ile Leu Asn 185 190 Gly Ser Asn Lys Lys Ser Gln Lys Arg Glu Ala Tyr Arg Tyr Leu 200 Gln Lys Ala Ala Ser Met Asn His Thr Lys Ala Leu Glu Arg Val Ser Tyr Ala Leu Leu Phe Gly Asp Tyr Leu Pro Gln Asn Ile Gln 230 235 Ala Ala Arg Glu Met Phe Glu Lys Leu Thr Glu Glu Gly Ser Pro Lys Gly Gln Thr Ala Leu Gly Phe Leu Tyr Ala Ser Gly Leu Gly 260 Val Asn Ser Ser Gln Ala Lys Ala Leu Val Tyr Tyr Thr Phe Gly 275 Ala Leu Gly Gly Asn Leu Ile Ala His Met Val Leu Val Ser Arg

Leu

<210> 116

<211> 584

<212> DNA

<213> Homo sapiens

290

<400> 116

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<210> 117 <211> 123 <212> PRT

<213> Homo sapiens

<400> 117

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Phe Pro Gly Gln Val Ala Gln Leu Ser Cys Thr Leu Ser Pro Gln 35 40 45

His Val Thr Ile Arg Asp Tyr Gly Val Ser Trp Tyr Gln Gln Arg
50 55 60

Ala Gly Ser Ala Pro Arg Tyr Leu Leu Tyr Tyr Arg Ser Glu Glu
65 70 75

Asp His His Arg Pro Ala Asp Ile Pro Asp Arg Phe Ser Ala Ala 80 85 90

Lys Asp Glu Ala His Asn Ala Cys Val Leu Thr Ile Ser Pro Val  $95 \hspace{1cm} 100 \hspace{1cm} 105$ 

Gln Pro Glu Asp Asp Ala Asp Tyr Tyr Cys Ser Val Gly Tyr Gly
110 115 120

Phe Ser Pro

<210> 118

<211> 3402

<212> DNA

<213> Homo sapiens

<400> 118

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Thr Met Trp Thr Lys Asp Gly Arg Thr Ile His Ser Gly Trp Ser
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Arg Phe Arg Val Leu Pro Gln Gly Leu Lys Val Lys Gln Val Glu
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Arg Glu Asp Ala Gly Val Tyr Val Cys Lys Ala Thr Asn Gly Phe 95 100 105

Gly Ser Leu Ser Val Asn Tyr Thr Leu Val Val Leu Asp Asp Ile 110 115 120

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Gln Pro Ser Lys Met Arg Arg Arg Val Ile Ala Arg Pro Val Gly
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Ser Ser Val Arg Leu Lys Cys Val Ala Ser Gly His Pro Arg Pro 170 175 180

Asp Ile Thr Trp Met Lys Asp Asp Gln Ala Leu Thr Arg Pro Glu 185 190 195

Ala Ala Glu Pro Arg Lys Lys Lys Trp Thr Leu Ser Leu Lys Asn 200 205

Leu Arg Pro Glu Asp Ser Gly Lys Tyr Thr Cys Arg Val Ser Asn 215 220 225

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205

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<210> 129 <211> 438 <212> PRT

<213> Homo sapiens

<400> 129

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Val Ser Ser Val Met Gln Pro Tyr Pro Leu Val Trp Gly His Tyr 20 25 30

Asp Leu Cys Lys Thr Gln Ile Tyr Thr Glu Glu Gly Lys Val Trp 35 40 45

Asp Tyr Met Ala Cys Gln Pro Glu Ser Thr Asp Met Thr Lys Tyr 50 55 60

Leu Lys Val Lys Leu Asp Pro Pro Asp Ile Thr Cys Gly Asp Pro 65 70 75

Pro Glu Thr Phe Cys Ala Met Gly Asn Pro Tyr Met Cys Asn Asn 80 85 90

Glu Cys Asp Ala Ser Thr Pro Glu Leu Ala His Pro Pro Glu Leu 95 100 105

Met Phe Asp Phe Glu Gly Arg His Pro Ser Thr Phe Trp Gln Ser 110 115

Ala Thr Trp Lys Glu Tyr Pro Lys Pro Leu Gln Val Asn Ile Thr

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Thr	Phe	Glu	Ser	Gly 155	Arg	Pro	Asp	Gln	Met 160	Ile	Leu	Glu	Lys	Se:
Leu	Asp	Tyr	Gly	Arg 170	Thr	Trp	Gln	Pro	Tyr 175	Gln	Tyr	Tyr	Ala	Th:
Asp	Cys	Leu	Asp	Ala 185	Phe	His	Met	Asp	Pro 190	Lys	Ser	Val	Lys	As <sub>1</sub>
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Ser	Thr	Gly	Tyr	Thr 215	Thr	Asn	Ser	Lys	Ile 220	Ile	His	Phe	Glu	Ile 225
Lys	Asp	Arg	Phe	Ala 230	Leu	Phe	Ala	Gly	Pro 235	Arg	Leu	Arg	Asn	Met 240
Ala	Ser	Leu	Tyr	Gly 245	Gln	Leu	Asp	Thr	Thr 250	Lys	Lys	Leu	Arg	Ası 25!
Phe	Phe	Thr	Val	Thr 260	Asp	Leu	Arg	Ile	Arg 265	Leu	Leu	Arg	Pro	Ala 270
Val	Gly	Glu	Ile	Phe 275	Val	Asp	Glu	Leu	His 280	Leu	Ala	Arg	Tyr	Phe 28
Tyr	Ala	Ile	Ser	Asp 290	Ile	Lys	Val	Arg	Gly 295	Arg	Cys	Lys	Cys	As:
Leu	His	Ala	Thr	Val 305	Cys	Val	Tyr	Asp	Asn 310	Ser	Lys	Leu	Thr	Cys 315
Glu	Cys	Glu	His	Asn 320	Thr	Thr	Gly	Pro	Asp 325	Cys	Gly	Lys	Cys	Ly:
Lys	Asn	Tyr	Gln	Gly 335	Arg	Pro	Trp	Ser	Pro 340	Gly	Ser	Tyr	Leu	Pro 345
Ile	Pro	Lys	Gly	Thr 350	Ala	Asn	Thr	Суз	Ile 355	Pro	Ser	Ile	Ser	Se:
Ile	Gly	Thr	Asn	Val 365	Cys	Asp	Asn	Glu	Leu 370	Leu	His	Cys	Gln	Asr 375
Gly	Gly	Thr	Cys	His 380	Asn	Asn	Val	Arg	Cys 385	Leu	Cys	Pro	Ala	Ala 390
Tyr	Thr	Gly	Ile	Leu 395	Cys	Glu	Lys	Leu	Arg 400	Cys	Glu	Glu	Ala	Gly 405
Ser	Cys	Gly	Ser	Asp 410	Ser	Gly	Gln	Gly	Ala 415	Pro	Pro	His	Gly	Th: 420
Pro	Ala	Leu	Leu	Leu 425	Leu	Thr	Thr	Leu	Leu 430	Gly	Thr	Ala	Ser	Pro 435
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<210> 134
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<212> DNA
<213> Homo sapiens
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 ttttgcctgc gtggtacggg taagggatgg actgcccctc tcagcctcta 200
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atcetetece teatteteaa cateatgtgt getgeeetga atcteatteg 750
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gctggttgga ccaaacctcg tgagccagcc acccctgacc caaatqaqqa 850
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<sup>&</sup>lt;210> 135

<sup>&</sup>lt;211> 228

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Homo sapiens

<sup>&</sup>lt;400> 135

Met Ser Val Ile Phe Phe Ala Cys Val Val Arg Val Arg Asp Gly 1 5 10 15

Leu Pro Leu Ser Ala Ser Thr Asp Phe Tyr His Thr Gln Asp Phe  $20 \\ 25 \\ 30$ 

Leu Glu Trp Arg Arg Arg Leu Lys Ser Leu Ala Leu Arg Leu Ala
35 40 45

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Gln Tyr Pro Gly Arg Gly Ser Ala Glu Gly Cys Asp Phe Ser Ile
                  50
His Phe Ser Ser Phe Gly Asp Val Ala Cys Met Ala Ile Cys Ser
Cys Gln Cys Pro Ala Ala Met Ala Phe Cys Phe Leu Glu Thr Leu
                                      85
Trp Trp Glu Phe Thr Ala Ser Tyr Asp Thr Thr Cys Ile Gly Leu
Ala Ser Arg Pro Tyr Ala Phe Leu Glu Phe Asp Ser Ile Ile Gln
                110
                                     115
Lys Val Lys Trp His Phe Asn Tyr Val Ser Ser Ser Gln Met Glu
                125
                                     130
Cys Ser Leu Glu Lys Ile Gln Glu Glu Leu Lys Leu Gln Pro Pro
                                     145
                                                         150
Ala Val Leu Thr Leu Glu Asp Thr Asp Val Ala Asn Gly Val Met
Asn Gly His Thr Pro Met His Leu Glu Pro Ala Pro Asn Phe Arg
                170
                                    175
Met Glu Pro Val Thr Ala Leu Gly Ile Leu Ser Leu Ile Leu Asn
                185
                                    190
Ile Met Cys Ala Ala Leu Asn Leu Ile Arg Gly Val His Leu Ala
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Gln Thr Ser

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<213> Homo sapiens

<220>

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<223> unknown base

<400> 136

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<210> 137

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<210> 138

<211> 489

<212> PRT

<213> Homo sapiens

<400> 138

Met Glu Ala Pro Asp Tyr Glu Val Leu Ser Val Arg Glu Gln Leu  $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$ 

Phe His Glu Arg Ile Arg Glu Cys Ile Ile Ser Thr Leu Leu Phe 20 25 30

Ala Thr Leu Tyr Ile Leu Cys His Ile Phe Leu Thr Arg Phe Lys
35 40 45

Lys Pro Ala Glu Phe Thr Thr Val Asp Asp Glu Asp Ala Thr Val 50 55 60

Asn Lys Ile Ala Leu Glu Leu Cys Thr Phe Thr Leu Ala Ile Ala 65 70 75

Leu Gly Ala Val Leu Leu Pro Phe Ser Ile Ile Ser Asn Glu 80 85 90

Val Leu Leu Ser Leu Pro Arg Asn Tyr Tyr Ile Gln Trp Leu Asn 95 100 105

Gly Ser Leu Ile His Gly Leu Trp Asn Leu Val Phe Leu Phe Pro 110 115 120

Asn Leu Ser Leu Ile Phe Leu Met Pro Phe Ala Tyr Phe Phe Thr

				125	)				130	)				135
Glı	ı Ser	: Glu	ı Gly	/ Phe	a Ala	a Gly	ser Ser	: Arg	J Lys 145		√Va]	L Let	ı Gly	7 Arc
Va]	l Туг	Glu	ı Thr	7 Val 155	. Val	. Met	Leu	Met	Leu 160	ı Leu )	ı Thı	r Leu	ı Lev	val 165
Leu	ı Gly	Met	: Val	Trp 170	Val	Ala	Ser	Ala	11e	val	. Asp	Lys	Asn	Lys 180
Ala	a Asn	Arg	Glu	Ser 185	Leu	ı Tyr	Asp	Phe	Trp		Туг	Туг	Leu	Pro 195
Tyr	Leu	Tyr	Ser	Cys 200	Ile	Ser	Phe	Leu	Gly 205		Leu	Leu	Leu	Leu 210
Val	. Cys	Thr	Pro	Leu 215	Gly	Leu	Ala	Arg	Met 220		Ser	· Val	Thr	Gly 225
Lys	Leu	Leu	Val	Lys 230	Pro	Arg	Leu	Leu	Glu 235		Leu	Glu	Glu	Gln 240
Leu	Tyr	Суз	Ser	Ala 245	Phe	Glu	Glu	Ala	Ala 250		Thr	Arg	Arg	Ile 255
Cys	Asn	Pro	Thr	Ser 260	Cys	Trp	Leu	Pro	Leu 265		Met	Glu	Leu	Leu 270
His	Arg	Gln	Val	Leu 275	Ala	Leu	Gln	Thr	Gln 280		Val	Leu	Leu	Glu 285
Lys	Arg	Arg	Lys	Ala 290	Ser	Ala	Trp	Gln	Arg 295	Asn	Leu	Gly	Tyr	Pro 300
Leu	Ala	Met	Leu	Cys 305	Leu	Leu	Val	Leu	Thr 310	Gly	Leu	Ser	Val	Leu 315
Ile	Val	Ala	Ile	His 320	Ile	Leu	Glu	Leu	Leu 325	Ile	Asp	Glu	Ala	Ala 330
Met	Pro	Arg	Gly	Met 335	Gln	Gly	Thr	Ser	Leu 340	Gly	Gln	Val	Ser	Phe 345
Ser	Lys	Leu	Gly	Ser 350	Phe	Gly	Ala	Val	Ile 355	Gln	Val	Val	Leu	Ile 360
Phe	Tyr	Leu	Met	Val 365	Ser	Ser	Val	Val	Gly 370	Phe	Tyr	Ser	Ser	Pro 375
Leu	Phe	Arg	Ser	Leu 380	Arg	Pro	Arg	Trp	His 385	Asp	Thr	Ala	Met	Thr 390
Gln	Ile	Ile	Gly	Asn 395	Cys	Val	Cys	Leu	Leu 400	Val	Leu	Ser	Ser	Ala 405
Leu	Pro	Val	Phe	Ser 410	Arg	Thr	Leu	Gly	Leu 415	Thr	Arg	Phe	Asp	Leu 420
Leu	Gly	Asp	Phe	Gly 425	Arg	Phe	Asn	Trp	Leu 430	Gly	Asn	Phe	Tyr	Ile 435
Val	Phe	Leu	Tyr	Asn	Ala	Ala	Phe	Ala	Gly	Leu	Thr	Thr	Leu	Cys

Leu Val Lys Thr Phe Thr Ala Ala Val Arg Ala Glu Leu Ile Arg 465

Ala Phe Gly Leu Asp Arg Leu Pro Leu Pro Val Ser Gly Phe Pro 470

Gln Ala Ser Arg Lys Thr Gln His Gln

Gln Ala Ser Arg Lys Thr Gln His Gln 485

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<223> unknown base

<400> 140
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taggctgggt ctggtgcttg gcggcggcgg cttcctcccc gttgtcntcc 200
ccgggcccag aggcacctcg gcttcagtca tgctgagcag agtatggaag 250
cacctgacta cgaagtgcta tccgtgcgag aacagctatt ccacgagagg 300
atccgcgagt gtattatatc aacacttctg tttgcaacac tgtacatcnt 350
ctgccacatc ttcctgaccc gcttcaagaa gcctgctgag ttcaccacag 400

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<210> 146 <211> 124 <212> PRT

<213> Homo sapiens

<400> 146

Met Leu Leu Trp Val Ile Leu Leu Val Leu Ala Pro Val Ser Gly 1 5 10

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Gly Phe Arg Phe Tyr Ser Pro Gln Lys Thr Lys Trp Tyr His Arg
50 55 60

Tyr Leu Gly Lys Glu Ile Leu Arg Glu Thr Pro Asp Asn Ile Leu 65 70 75

Glu Val Gln Glu Ser Gly Glu Tyr Arg Cys Gln Ala Gln Gly Ser 80 85 90

Pro Leu Ser Ser Pro Val His Leu Asp Phe Ser Ser Glu Met Gly 95 100 105

Phe Pro His Ala Ala Gln Ala Asn Val Glu Leu Leu Gly Ser Ser 110 115 120

Asp Leu Leu Thr

<210> 147

<211> 1621

<212> DNA

<213> Homo sapiens

<400> 147

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<sup>&</sup>lt;210> 148

<sup>&</sup>lt;211> 358

<sup>&</sup>lt;212> PRT

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Asp Asp Leu Tyr Thr Asn Val Thr Ile Ser Leu Val Glu Ser Leu 260 265 270

Val Gly Phe Glu Met Asp Ile Thr His Leu Asp Gly His Lys Val 275 280 285

His Ile Ser Arg Asp Lys Ile Thr Arg Pro Gly Ala Lys Leu Trp 290 295 300

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Lys Lys Gly Glu Gly Leu Pro Asn Phe Asp Asn Asn Ile Lys
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                                                          315
 Gly Ser Leu Ile Ile Thr Phe Asp Val Asp Phe Pro Lys Glu Gln
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<223> unknown base
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gttgccatag gtgtgctggc caccatcttt ctggcttcgt ttgcagcctt 250
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<210> 151

<211> 226

<212> PRT

<213> Homo sapiens

<400> 151

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Phe Leu Ala Ser Phe Ala Ala Leu Val Leu Val Cys Arg Gln Arg
20 25 30

Tyr Cys Arg Pro Arg Asp Leu Leu Gln Arg Tyr Asp Ser Lys Pro

35 40 45

Ile Val Asp Leu Ile Gly Ala Met Glu Thr Gln Ser Glu Pro Ser 50 55

Glu Leu Glu Leu Asp Asp Val Val Ile Thr Asn Pro His Ile Glu
65 70 75

Ala Ile Leu Glu Asn Glu Asp Trp Ile Glu Asp Ala Ser Gly Leu
80 85 90

Met Ser His Cys Ile Ala Ile Leu Lys Ile Cys His Thr Leu Thr 95 100 105

Glu Lys Leu Val Ala Met Thr Met Gly Ser Gly Ala Lys Met Lys 110 115 120

Thr Ser Ala Ser Val Ser Asp IIe IIe Val Val Ala Lys Arg IIe 125 130 135

Ser Pro Arg Val Asp Asp Val Val Lys Ser Met Tyr Pro Pro Leu 140 145 150

Asp Pro Lys Leu Leu Asp Ala Arg Thr Thr Ala Leu Leu Leu Ser 155 160 : 165

Val Ser His Leu Val Leu Val Thr Arg Asn Ala Cys His Leu Thr 170 175 180

Gly Gly Leu Asp Trp Ile Asp Gln Ser Leu Ser Ala Ala Glu Glu 185 190 195

His Leu Glu Val Leu Arg Glu Ala Ala Leu Ala Ser Glu Pro Asp 200 205 210

Lys Gly Leu Pro Gly Pro Glu Gly Phe Leu Gln Glu Gln Ser Ala  $215 \\ 220 \\ 225$ 

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<210> 152

<211> 1027

<212> DNA

<213> Homo sapiens

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<221> unsure

<222> 1017, 1020

<223> unknown base

<400> 152

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<213> Homo sapiens
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<221> N-myristoylation Sites
<222> 11-16, 51-56 and 116-121
<223> N-myristoylation Sites.
<220>
<221> Transmembrane domains
<222> 12-30, 33-52, 69-89 and 93-109
<223> Transmembrane domains
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<221> Aminoacyl-transfer RNA Synthetases.
<222> 49-59
<223> Aminoacyl-transfer RNA synthetases class-II protein.
<400> 153
Met Ile Ser Leu Thr Asp Thr Gln Lys Ile Gly Met Gly Leu Thr
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Gly Phe Gly Val Phe Phe Leu Phe Phe Gly Met Ile Leu Phe Phe

Asp Lys Ala Leu Leu Ala Ile Gly Asn Val Leu Phe Val Ala Gly 40

Leu Ala Phe Val Ile Gly Leu Glu Arg Thr Phe Arg Phe Phe 50 55 60

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Gln Lys His Lys Met Lys Ala Thr Gly Phe Phe Leu Gly Gly Val 75

Phe Val Val Leu Ile Gly Trp Pro Leu Ile Gly Met Ile Phe Glu 90

Ile Tyr Gly Phe Phe Leu Leu Phe Arg Gly Phe Phe Pro Val Val 105

Val Gly Phe Ile Arg Arg Val Pro Val Leu Gly Ser Leu Leu Asn 125

Leu Pro Gly Ile Arg Ser Phe Val Asp Lys Val Gly Glu Ser Asn 135
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Asn Met Val

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ttaaccggat ttggagtgtt tttcctgttc tttggaatga ttctcttttt 200
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<210> 155 <211> 1781 <212> DNA <213> Homo sapiens

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<210> 156

<211> 378 <212> PRT <213> Homo sapiens

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290 295 300 Pro Pro Arg Arg Pro Trp Thr Leu Val Asn Trp Leu Phe Trp Ala 305 315 Ser Leu Val Leu Tyr Pro Phe Phe Gln Phe Leu Val Ser Met Ile 325 Arg Ser Gly Ser Ser Leu Thr Leu Ala Ser Phe Ile Leu Val Phe 335 340 345 Phe Val Ala Ser Val Gly Val Arg Trp Met Ile Gly Val Thr Glu 355 Ile Asp Lys Gly Ser Ala Tyr Gly Asn Ser Asp Ser Lys Gln Lys 365

Leu Asn Asp

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<210> 158

<211> 409

<212> PRT

<213> Homo sapiens

<400> 158

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Gly Ala Leu Ala Phe Gln His Leu Asn Thr Asp Ser Asp Thr Glu 20 25 30

Gly Phe Leu Leu Gly Glu Val Lys Gly Glu Ala Lys Asn Ser Ile 35 40 45

Thr Asp Ser Gln Met Asp Asp Val Glu Val Val Tyr Thr Ile Asp 50 55 60

Ile Gln Lys Tyr Ile Pro Cys Tyr Gln Leu Phe Ser Phe Tyr Asn 65 70 75

Ser Ser Gly Glu Val Asn Glu Gln Ala Leu Lys Lys Ile Leu Ser 80 85 90

Asn Val Lys Lys Asn Val Val Gly Trp Tyr Lys Phe Arg Arg His 95 100 105

Ser Asp Gln Ile Met Thr Phe Arg Glu Arg Leu Leu His Lys Asn Leu Gln Glu His Phe Ser Asn Gln Asp Leu Val Phe Leu Leu 130 Thr Pro Ser Ile Ile Thr Glu Ser Cys Ser Thr His Arg Leu Glu 140 His Ser Leu Tyr Lys Pro Gln Lys Gly Leu Phe His Arg Val Pro 160 Leu Val Val Ala Asn Leu Gly Met Ser Glu Gln Leu Gly Tyr Lys Thr Val Ser Gly Ser Cys Met Ser Thr Gly Phe Ser Arg Ala Val 190 Gln Thr His Ser Ser Lys Phe Phe Glu Glu Asp Gly Ser Leu Lys 205 Glu Val His Lys Ile Asn Glu Met Tyr Ala Ser Leu Gln Glu Glu Leu Lys Ser Ile Cys Lys Lys Val Glu Asp Ser Glu Gln Ala Val Asp Lys Leu Val Lys Asp Val Asn Arg Leu Lys Arg Glu Ile Glu 245 250 Lys Arg Arg Gly Ala Gln Ile Gln Ala Ala Arg Glu Lys Asn Ile 260 265 Gln Lys Asp Pro Gln Glu Asn Ile Phe Leu Cys Gln Ala Leu Arg 280 Thr Phe Phe Pro Asn Ser Glu Phe Leu His Ser Cys Val Met Ser 295 Leu Lys Asn Arg His Val Ser Lys Ser Ser Cys Asn Tyr Asn His His Leu Asp Val Val Asp Asn Leu Thr Leu Met Val Glu His Thr 320 Asp Ile Pro Glu Ala Ser Pro Ala Ser Thr Pro Gln Ile Ile Lys 340 His Lys Ala Leu Asp Leu Asp Asp Arg Trp Gln Phe Lys Arg Ser 350 Arg Leu Leu Asp Thr Gln Asp Lys Arg Ser Lys Ala Asn Thr Gly 370 Ser Ser Asn Gln Asp Lys Ala Ser Lys Met Ser Ser Pro Glu Thr 380 385 Asp Glu Glu Ile Glu Lys Met Lys Gly Phe Gly Glu Tyr Ser Arg Ser Pro Thr Phe

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Ser	Leu	Gln	Ser	Lys 80	Asp	Asp	Phe	Lys	Ser 85	Val	Val	Ser	Glu	Gln 90
Cys	Asn	His	Leu	Gln 95	Ala	Val	Phe	Ala	Ser 100	Arg	Tyr	Lys	Lys	Phe 105
Asp	Glu	Phe	Phe	Lys 110	Glu	Leu	Leu	Glu	Asn 115	Ala	Glu	Lys	Ser	Leu 120
Asn	Asp	Met	Phe	Val 125	Lys	Thr	Tyr	Gly	His 130	Leu	Tyr	Met	Gln	Asn 135
Ser	Glu	Leu	Phe	Lys 140	Asp	Leu	Phe	Val	Glu 145	Leu	Lys	Arg	Tyr	Tyr 150
Val	Val	Gly	Asn	Val 155	Asn	Leu	Glu	Glu	Met 160	Leu	Asn	Asp	Phe	Trp 165
Ala	Arg	Leu	Leu	Glu 170	Arg	Met	Phe	Arg	Leu 175	Val	Asn	Ser	Gln	Tyr 180
His	Phe	Thr	Asp	Glu 185	Tyr	Leu	Glu	Суз	Val 190	Ser	Lys	Tyr	Thr	Glu 195
Gln	Leu	Lys	Pro	Phe 200	Gly	Asp	Val	Pro	Arg 205	Lys	Leu	Lys	Leu	Gln 210
Val	Thr	Arg	Ala	Phe 215	Val	Ala	Ala	Arg	Thr 220	Phe	Ala	Gln	Gly	Leu 225
Ala	Val	Ala	Gly	Asp 230	Val	Val	Ser	Lys	Val 235	Ser	Val	Val	Asn	Pro 240
Thr	Ala	Gln	Cys	Thr 245	His	Ala	Leu	Leu	Lys 250	Met	Ile	Tyr	Cys	Ser 255
His	Cys	Arg	Gly	Leu 260	Val	Thr	Val	Lys	Pro 265	Суѕ	Tyr	Asn	Tyr	Cys 270
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Phe	Glu	Trp	Asn	Asn 290	Phe	Ile	Asp	Ala	Met 295	Leu	Met	Val	Ala	Glu 300
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Glu	Lys	Leu	Lys	Gln 395	Ala	Lys	Lys	Phe	Trp 400		Ser	Leu	Pro	Ser 405
Asn	Val	Cys	Asn	Asp 410	Glu	Arg	Met	Ala	Ala 415	Gly	Asn	Gly	Asn	Glu 420
Asp	Asp	Cys	Trp	Asn 425	Gly	Lys	Gly	Lys	Ser 430	Arg	Tyr	Leu	Phe	Ala 435
Val	Thr	Gly	Asn	Gly 440	Leu	Ala	Asn	Gln	Gly 445	Asn	Asn	Pro	Glu	Val 450
Gln	Val	Asp	Thr	Ser 455	Lys	Pro	Asp	Ile	Leu 460	Ile	Leu	Arg	Gln	Ile 465
Met	Ala	Leu	Arg	Val 470	Met	Thr	Ser	Lys	Met 475	Lys	Asn	Ala	Tyr	Asn 480
Gly	Asn	Asp	Val	Asp 485	Phe	Phe	Asp	Ile	Ser 490	Asp	Glu	Ser	Ser	Gly 495
Glu	Gly	Ser	Gly	Ser 500	Gly	Cys	Glu	Tyr	Gln 505	Gln	Cys	Pro	Ser	Glu 510
Phe	Asp	Tyr	Asn	Ala 515	Thr	Asp	His	Ala	Gly 520	Lys	Ser	Ala	Asn	Glu 525
Lys	Ala	Asp	Ser	Ala 530	Gly	Val	Arg	Pro	Gly 535	Ala	Gln	Ala	Tyr	Leu 540
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Gly Gly Gln Glu Cys Glu Cys Lys Asp Trp Phe Leu Arg Ala Pro
50 55 60

Arg Arg Lys Phe Met Thr Val Ser Gly Leu Pro Lys Lys Gln Cys 65 70 75

Pro Cys Asp His Phe Lys Gly Asn Val Lys Lys Thr Arg His Gln
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Phe Leu Lys Gln Cys Gln Leu Arg Ser Phe Ala Leu Pro Leu 110 115

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ccatgtccag gagcacagga tttatggaat ttgatgataa tgaaggaaaa 250

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<211> 87

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<213> Homo sapiens

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Asp Asp Lys Pro Asp Asp Ser Gly Lys Asp Pro Lys Pro Asp Phe

Pro Lys Phe Leu Ser Leu Leu Gly Thr Glu Ile Ile Glu Asn Ala

Val Glu Phe Ile Leu Arg Ser Met Ser Arg Ser Thr Gly Phe Met 70

Glu Phe Asp Asp Asn Glu Gly Lys His Ser Ser Lys

<210> 168

<211> 1371

<212> DNA

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Aller Aller

45 A and

Parts Teach 4.

117

i.

ļ. 1

100 m

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<211> 277

<212> PRT

<213> Homo sapiens

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Leu Cys Lys Ser Tyr Phe Pro Tyr Leu Met Ala Val Leu Thr Pro 35 40 45

Lys Ser Asn Arg Lys Met Glu Ser Lys Lys Arg Glu Leu Phe Ser 50 55 60

Gln Ile Lys Gly Leu Thr Gly Ala Ser Gly Lys Val Ala Leu Leu
65 70 75

Glu Leu Gly Cys Gly Thr Gly Ala Asn Phe Gln Phe Tyr Pro Pro 80  $\,$  85  $\,$  90  $\,$ 

Gly Cys Arg Val Thr Cys Leu Asp Pro Asn Pro His Phe Glu Lys 95 100 105

Phe Leu Thr Lys Ser Met Ala Glu Asn Arg His Leu Gln Tyr Glu 110 115 120

Arg Phe Val Val Ala Pro Gly Glu Asp Met Arg Gln Leu Ala Asp 125 130 135

Gly Ser Met Asp Val Val Val Cys Thr Leu Val Leu Cys Ser Val 140 145 150

Gln Ser Pro Arg Lys Val Leu Gln Glu Val Arg Arg Val Leu Arg 155 160 165

Pro Gly Gly Val Leu Phe Phe Trp Glu His Val Ala Glu Pro Tyr 170 175 180

Gly Ser Trp Ala Phe Met Trp Gln Gln Val Phe Glu Pro Thr Trp 185 190 195

Lys His Ile Gly Asp Gly Cys Cys Leu Thr Arg Glu Thr Trp Lys 200 205 210

Asp Leu Glu Asn Ala Gln Phe Ser Glu Ile Gln Met Glu Arg Gln
215 220 225

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Lys Ala Val Lys Gln Ser Phe Pro Ser Ser Lys Ala Leu Ile Cys 255
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<211> 371

<212> PRT

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Ser Leu Leu Arg Asn Glu Val Thr Asp Ser Gly Ile Val Gly Pro 35 40 45

Gln Pro Ile Asp Phe Val Pro Asn Ala Leu Arg His Ala Val Asp
50 55 60

Gly Arg Gln Glu Glu Ile Pro Val Val Ile Ala Ala Ser Glu Asp
65 70 75

Arg Leu Gly Gly Ala Ile Ala Ile Asn Ser Ile Gln His Asn 80 85 90

Thr Arg Ser Asn Val Ile Phe Tyr Ile Val Thr Leu Asn Asn Thr 95 100 105

Ala Asp His Leu Arg Ser Trp Leu Asn Ser Asp Ser Leu Lys Ser 110 115 120

Ile Arg Tyr Lys Ile Val Asn Phe Asp Pro Lys Leu Leu Glu Gly 125 130 135

Lys Val Lys Glu Asp Pro Asp Gln Gly Glu Ser Met Lys Pro Leu 140 145 150

Thr Phe Ala Arg Phe Tyr Leu Pro Ile Leu Val Pro Ser Ala Lys 155 160 165

Lys Ala Ile Tyr Met Asp Asp Val Ile Val Gln Gly Asp Ile 170 175 180

Leu Ala Leu Tyr Asn Thr Ala Leu Lys Pro Gly His Ala Ala Ala

185 190 195 Phe Ser Glu Asp Cys Asp Ser Ala Ser Thr Lys Val Val Ile Arg 200 210 Gly Ala Gly Asn Gln Tyr Asn Tyr Ile Gly Tyr Leu Asp Tyr Lys 215 Lys Glu Arg Ile Arg Lys Leu Ser Met Lys Ala Ser Thr Cys Ser 230 235 Phe Asn Pro Gly Val Phe Val Ala Asn Leu Thr Glu Trp Lys Arg 250 255 Gln Asn Ile Thr Asn Gln Leu Glu Lys Trp Met Lys Leu Asn Val 260 Glu Glu Gly Leu Tyr Ser Arg Thr Leu Ala Gly Ser Ile Thr Thr Pro Pro Leu Leu Ile Val Phe Tyr Gln Gln His Ser Thr Ile Asp 295 300 Pro Met Trp Asn Val Arg His Leu Gly Ser Ser Ala Gly Lys Arg 315 Tyr Ser Pro Gln Phe Val Lys Ala Ala Lys Leu Leu His Trp Asn 325 Gly His Leu Lys Pro Trp Gly Arg Thr Ala Ser Tyr Thr Asp Val 335 340 Trp Glu Lys Trp Tyr Ile Pro Asp Pro Thr Gly Lys Phe Asn Leu 355 Ile Arg Arg Tyr Thr Glu Ile Ser Asn Ile Lys 365

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<223> unknown base

<400> 172

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aagcatcaga tacaaaattg tcaattttga ccctaaactt ttggaaggaa 350

aagtaaagga ggatcctgac cagggggaat ccatgaaacc tttaaccttt 400 gcaaggttct acttgccaat tctggttccc agcgcaaaga aggccatata 450 catggatgat gatgtaattg tgcaaggtga tattcttgcc ctttacaata 500 cagcactgaa gccaggacat gcagctgcat tttcagaaga ttgtgattca 550 gcctctacta aagttgtcat ccgtggagca ggaaa 585

- <210> 173
- <211> 1866
- <212> DNA
- <213> Homo sapiens
- <400> 173

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<210> 174

<211> 823

<212> DNA

<213> Homo sapiens

<400> 174

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ctcaccattg aggeagetee actgtetgtg etggtetgag ggtgetgeet 150
gtcatggggg cagceatete ecagggggee etcategeea tegtetgeaa 200
eggtetegtg ggettettge tgetgetget etgggteate etetgetag 250
cetgecatte tegtetgeeg acgttgaete tetetetgaa tecagteea 300
actecageee tggeeeetgt eetgagaagg ececaceaee ecagaageee 350
ageeatgaag geagetacet getgeageee tgaaggeeee tggeetagee 400
tggageeeag gacetaagte eaceteaeet agageetgga attaggatee 450
eagagtteag ecageeeggg gtecagaaet eaagagteeg eetgettgga 500
getggaeeea geggeeeaga gtetageeag ettggeteea ataggagete 550
agtggeeeta aggagatggg eetgggtgg gggettatga gttggtgeta 600
gageeaggge eatetggaet atgeteeate ecaagggeea agggteaggg 650
geegggteea etetteeet aggetgagea eetetaggee etetaggttg 700
gggaagcaaa etggaaeeea tggeaataat aggaggtgt ecaggetggg 750

cccctccct ggtcctccca gtgtttgctg gataataaat ggaactatgg 800 ctctaaaaaa aaaaaaaaa aaa 823

<210> 175

<211> 87

<212> PRT

<213> Homo sapiens

<400> 175

Met Gly Ala Ala Ile Ser Gln Gly Ala Leu Ile Ala Ile Val Cys 1 5 10 15

Asn Gly Leu Val Gly Phe Leu Leu Leu Leu Leu Trp Val Ile Leu 20 25 30

Cys Trp Ala Cys His Ser Arg Leu Pro Thr Leu Thr Leu Ser Leu 35 40 45

Asn Pro Val Pro Thr Pro Ala Leu Ala Pro Val Leu Arg Arg Pro 50 55 60

His His Pro Arg Ser Pro Ala Met Lys Ala Ala Thr Cys Cys Ser 65 70 75

Pro Glu Gly Pro Trp Pro Ser Leu Glu Pro Arg Thr 80 85

<210> 176

<211> 1660

<212> DNA

<213> Homo sapiens

<400> 176

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cgtgccagca aatgactata gctggggcag tggttacttg ttatttcaac 800 agaagtaaaa atgatcctcc tgatcatccc atcctttcgt ctctctccat 850 tctcttcttc taccatcaag gaaccgttgt gaaagggtca tttttaatct 900 ctgtggtgag gattccgaga atcattgtca tgtacatgca aaacgcactg 950 aaagaacagc agcatggtgc attgtccagg tacctgttcc gatgctgcta 1000 ctgctgtttc tggtgtcttg acaaatacct gctccatctc aaccagaatg 1050 catatactac aactgctatt aatgggacag atttctgtac atcagcaaaa 1100 gatgcattca aaatcttgtc caagaactca agtcacttta catctattaa 1150 ctgctttgga gacttcataa tttttctagg aaaggtgtta gtggtgtgtt 1200 tcactgtttt tggaggactc atggctttta actacaatcg ggcattccag 1250 gtgtgggcag tccctctgtt attggtagct ttttttgcct acttagtagc 1300 ccatagtttt ttatctgtgt ttgaaactgt gctggatgca cttttcctgt 1350 gttttgctgt tgatctggaa acaaatgatg gatcgtcaga aaagccctac 1400 tttatggatc aagaatttct gagtttcgta aaaaggagca acaaattaaa 1450 caatgcaagg gcacagcagg acaagcactc attaaggaat gaggagggaa 1500 cagaactcca ggccattgtg agatagatac ccatttaggt atctgtacct 1550 ggaaaacatt tccttctaag agccatttac agaatagaag atgagaccac 1600 tagagaaaag ttagtgaatt tttttttaaa agacctaata aaccctattc 1650 ttcctcaaaa 1660

<210> 177

<211> 445

<212> PRT

<213> Homo sapiens

<400> 177

Met Ser Gly Arg Asp Thr Ile Leu Gly Leu Cys Ile Leu Ala Leu 1 5 10 15

Ala Leu Ser Leu Ala Met Met Phe Thr Phe Arg Phe Ile Thr Thr 20 25 30

Leu Leu Val His Ile Phe Ile Ser Leu Val Ile Leu Gly Leu Leu 35 40 45

Phe Val Cys Gly Val Leu Trp Trp Leu Tyr Tyr Asp Tyr Thr Asn 50 55 60

Asp Leu Ser Ile Glu Leu Asp Thr Glu Arg Glu Asn Met Lys Cys 65 70 75

Val Leu Gly Phe Ala Ile Val Ser Thr Gly Ile Thr Ala Val Leu 80 85 90

Leu Val Leu Ile Phe Val Leu Arg Lys Arg Ile Lys Leu Thr Val

				95					100					105
Glu	Leu	Phe	Gln	Ile 110	Thr	Asn	Lys	Ala	Ile 115	Ser	Ser	Ala	Pro	Phe 120
Leu	Leu	Phe	Gln	Pro 125	Leu	Trp	Thr	Phe	Ala 130	Ile	Leu	Ile	Phe	Phe 135
Trp	Val	Leu	Trp	Val 140	Ala	Val	Leu	Leu	Ser 145	Leu	Gly	Thr	Ala	Gly 150
Ala	Ala	Gln	Val	Met 155	Glu	Gly	Gly	Gln	Val 160	Glu	Tyr	Lys	Pro	Leu 165
Ser	Gly	Ile	Arg	Tyr 170	Met	Trp	Ser	Tyr	His 175	Leu	Ile	Gly	Leu	Ile 180
Trp	Thr	Ser	Glu	Phe 185	Ile	Leu	Ala	Cys	Gln 190	Gln	Met	Thr	Ile	Ala 195
Gly	Ala	Val	Val	Thr 200	Cys	Tyr	Phe	Asn	Arg 205	Ser	Lys	Asn	Asp	Pro 210
Pro	Asp	His	Pro	Ile 215	Leu	Ser	Ser	Leu	Ser 220	Ile	Leu	Phe	Phe	Tyr 225
His	Gln	Gly	Thr	Val 230	Val	Lys	Gly	Ser	Phe 235	Leu	Ile	Ser	Val	Val 240
Arg	Ile	Pro	Arg	Ile 245	Ile	Val	Met	Tyr	Met 250	Gln	Asn	Ala	Leu	Lys 255
Glu	Gln	Gln	His	Gly 260	Ala	Leu	Ser	Arg	Tyr 265	Leu	Phe	Arg	Cys	Cys 270
Tyr	Cys	Cys	Phe	Trp 275	Cys	Leu	Asp	Lys	Tyr 280	Leu	Leu	His	Leu	Asn 285
Gln	Asn	Ala	Tyr	Thr 290	Thr	Thr	Ala	Ile	Asn 295	Gly	Thr	Asp	Phe	Суs 300
Thr	Ser	Ala	Lys	Asp 305	Ala	Phe	Lys	Ile	Leu 310	Ser	Lys	Asn	Ser	Ser 315
His	Phe	Thr	Ser	Ile 320		Cys			Asp 325		Ile	Ile	Phe	1eu
Gly	Lys	Val	Leu	Val 335	Val	Cys	Phe	Thr	Val 340	Phe	Gly	Gly	Leu	Met 345
Ala	Phe	Asn	Tyr	Asn 350	Arg	Ala	Phe	Gln	Val 355	Trp	Ala	Val	Pro	Leu 360
Leu	Leu	Val	Ala	Phe 365	Phe	Ala	Tyr	Leu	Val 370	Ala	His	Ser	Phe	Leu 375
Ser	Val	Phe	Glu	Thr 380	Val	Leu	Asp	Ala	Leu 385	Phe	Leu	Cys	Phe	Ala 390
Val	Asp	Leu	Glu	Thr 395	Asn	Asp	Gly	Ser	Ser 400	Glu	Lys	Pro	Tyr	Phe 405
Met	Asp	Gln	G].u	Phe	Ten	Ser	Phe	Val	Lvs	Ara	Ser	Asn	Lvs	Len

Si Single

. Post

ķsk

410 415 420

Asn Asn Ala Arg Ala Gln Gln Asp Lys His Ser Leu Arg Asn Glu 425 430 435

Glu Gly Thr Glu Leu Gln Ala Ile Val Arg 440 445

<210> 178

<211> 2773

<212> DNA

<213> Homo sapiens

<400> 178

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<210> 179

<211> 678 <212> PRT <213> Homo sapiens

<400> 179 Met Arg Thr Val Val Leu Thr Met Lys Ala Ser Val Ile Glu Met Phe Leu Val Leu Leu Val Thr Gly Val His Ser Asn Lys Glu Thr Ala Lys Lys Ile Lys Arg Pro Lys Phe Thr Val Pro Gln Ile Asn Cys Asp Val Lys Ala Gly Lys Ile Ile Asp Pro Glu Phe Ile Val Lys Cys Pro Ala Gly Cys Gln Asp Pro Lys Tyr His Val Tyr Gly Thr Asp Val Tyr Ala Ser Tyr Ser Ser Val Cys Gly Ala Ala Val His Ser Gly Val Leu Asp Asn Ser Gly Gly Lys Ile Leu Val Arg Lys Val Ala Gly Gln Ser Gly Tyr Lys Gly Ser Tyr Ser Asn Gly 115 Val Gln Ser Leu Ser Leu Pro Arg Trp Arg Glu Ser Phe Ile Val 130 Leu Glu Ser Lys Pro Lys Lys Gly Val Thr Tyr Pro Ser Ala Leu 145 Thr Tyr Ser Ser Ser Lys Ser Pro Ala Ala Gln Ala Gly Glu Thr 160 Thr Lys Ala Tyr Gln Arg Pro Pro Ile Pro Gly Thr Thr Ala Gln Pro Val Thr Leu Met Gln Leu Leu Ala Val Thr Val Ala Val Ala Thr Pro Thr Thr Leu Pro Arg Pro Ser Pro Ser Ala Ala Ser Thr 205 Thr Ser Ile Pro Arg Pro Gln Ser Val Gly His Arg Ser Gln Glu 220 Met Asp Leu Trp Ser Thr Ala Thr Tyr Thr Ser Ser Gln Asn Arg 235 Pro Arg Ala Asp Pro Gly Ile Gln Arg Gln Asp Pro Ser Gly Ala 250 Ala Phe Gln Lys Pro Val Gly Ala Asp Val Ser Leu Gly Leu Val 270 Pro Lys Glu Glu Leu Ser Thr Gln Ser Leu Glu Pro Val Ser Leu

Gly Asp Pro Asn Cys Lys Ile Asp Leu Ser Phe Leu Ile Asp Gly

				290	)				29	5				300
Sei	r Th:	r Se:	r Ile	∋ Gl <sub>3</sub> 305	y Lys	s Aro	g Ar	g Phe	e Aro		e Glı	n Ly	s Gl	n Leu 315
Leı	ı Ala	a Asp	o Val	Ala 320	a Glr	n Ala	a Lei	u Ası	o Ile 325		y Pro	o Ala	a Gl	y Pro 330
Let	ı Met	Gly	y Val	Val 335	. Glr	туг	Gly	y Asp	9 Asr 340		Ala	a Th:	r Hi:	s Phe 345
Asn	ı Let	ı Lys	5 Thr	His 350	Thi	: Asr	ı Sei	r Arg	355		ı Lys	3 Thi	r Ala	a Ile 360
Glu	ı Lys	s Ile	e Thr	Gln 365	Arg	g Gly	gl	y Leu	370		ı Val	Gl <sub>3</sub>	/ Arg	7 Ala 375
Ile	e Ser	Phe	e Val	Thr 380	Lys	: Asn	Phe	Phe	Ser 385	Lys	a Ala	a Asr	ı Gly	7 Asn 390
Arg	Ser	Gly	7 Ala	Pro 395	Asn	Val	. Val	. Val	Val 400		: Val	Asp	Gly	7 Trp 405
Pro	Thr	Asp	Lys	Val 410	Glu	Glu	. Ala	Ser	Arg 415		Ala	Arç	g Glu	Ser 420
Gly	'Ile	Asn	Ile	Phe 425	Phe	Ile	Thr	: Ile	Glu 430		Ala	Ala	Glu	Asn 435
Glu	Lys	Gln	Tyr	Val 440	Val	Glu	Pro	Asn	Phe 445	Ala	Asn	Lys	Ala	Val 450
Cys	Arg	Thr	Asn	Gly 455	Phe	Tyr	Ser	Leu	His 460	Val	Gln	Ser	Trp	Phe 465
Gly	Leu	His	Lys	Thr 470	Leu	Gln	Pro	Leu	Val 475	Lys	Arg	Val	Cys	Asp 480
Thr	Asp	Arg	Leu	Ala 485	Cys	Ser	Lys	Thr	Cys 490	Leu	Asn	Ser	Ala	Asp 495
Ile	Gly	Phe	Val	Ile 500	Asp	Gly	Ser	Ser	Ser 505	Val	Gly	Thr	Gly	Asn 510
Phe	Arg	Thr	Val	Leu 515	Gln	Phe	Val	Thr	Asn 520	Leu	Thr	Lys	Glu	Phe 525
Glu	Ile	Ser	Asp	Thr 530	Asp	Thr	Arg	Ile	Gly 535	Ala	Val	Gln	Tyr	Thr 540
Tyr	Glu	Gln	Arg	Leu 545	Glu	Phe	Gly	Phe	Asp 550	Lys	Tyr	Ser	Ser	Lys 555
Pro	Asp	Ile	Leu	Asn 560	Ala	Ile	Lys	Arg	Val 565	Gly	Tyr	Trp	Ser	Gly 570
Gly	Thr	Ser	Thr	Gly 575	Ala	Ala	Ile	Asn	Phe 580	Ala	Leu	Glu	Gln	Leu 585
Phe	Lys	Lys	Ser	Lys 590	Pro	Asn	Lys	Arg	Lys 595	Leu	Met	Ile	Leu	Ile 600
Thr	Asp	Gly	Arg	Ser	Tyr	Asp	Asp	Val	Arg	Ile	Pro	Ala	Met	Ala

Ala His Leu Lys Gly Val Ile Thr Tyr Ala Ile Gly Val Ala Trp 630

Ala Ala Gln Glu Leu Glu Val Ile Ala Thr His Pro Ala Arg 645

Asp His Ser Phe Phe Val Asp Glu Phe Asp Asn Leu His Gln Tyr 660

Val Pro Arg Ile Ile Gln Asn Ile Cys Thr Glu Phe Asn Ser Gln 675

Pro Arg Asn

<210> 180 <211> 1759

<212> DNA

<213> Homo sapiens

<400> 180

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<210> 181

<211> 541

<212> PRT

<213> Homo sapiens

<400> 181

Met Pro Phe Arg Leu Leu Ile Pro Leu Gly Leu Leu Cys Ala Leu 1 5 10 15

Leu Pro Gln His His Gly Ala Pro Gly Pro Asp Gly Ser Ala Pro 20 25 30

Asp Pro Ala His Tyr Ser Phe Ser Leu Thr Leu Ile Asp Ala Leu
35 40

Asp Thr Leu Leu Ile Leu Gly Asn Val Ser Glu Phe Gln Arg Val 50 55 60

Val Glu Val Leu Gln Asp Ser Val Asp Phe Asp Ile Asp Val Asn 65 70 75

Ala Ser Val Phe Glu Thr Asn Ile Arg Val Val Gly Gly Leu Leu 80 85 90

Ser Ala His Leu Leu Ser Lys Lys Ala Gly Val Glu Val Glu Ala 95 100 105

Gly Trp Pro Cys Ser Gly Pro Leu Leu Arg Met Ala Glu Glu Ala 110 115 120

Ala Arg Lys Leu Pro Ala Phe Gln Thr Pro Thr Gly Met Pro

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Pro	Val	Thr	Cys	Thr 155	Ala	Gly	Ile	Gly	Thr 160	Phe	Ile	Val	Glu	Phe 165
Ala	Thr	Leu	Ser	Ser 170	Leu	Thr	Gly	Asp	Pro 175	Val	Phe	Glu	Asp	Val 180
Ala	Arg	Val	Ala	Leu 185	Met	Arg	Leu	Trp	Glu 190	Ser	Arg	Ser	Asp	Ile 195
Gly	Leu	Val	Gly	Asn 200	His	Ile	Asp	Val	Leu 205	Thr	Gly	Lys	Trp	Val 210
Ala	Gln	Asp	Ala	Gly 215	Ile	Gly	Ala	Gly	Val 220	Asp	Ser	Tyr	Phe	Gl 225
Tyr	Leu	Val	Lys	Gly 230	Ala	Ile	Leu	Leu	Gln 235	Asp	Lys	Lys	Leu	Met 240
Ala	Met	Phe	Leu	Glu 245	Tyr	Asn	Lys	Ala	Ile 250	Arg	Asn	Tyr	Thr	Arc 255
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Ser	Met	Pro	Val	Phe 275	Gln	Ser	Leu	Glu	Ala 280	Tyr	Trp	Pro	Gly	Le:
Gln	Ser	Leu	Ile	Gly 290	Asp	Ile	Asp	Asn	Ala 295	Met	Arg	Thr	Phe	Le:
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Pro	Leu	Arg	Pro	Glu 335	Leu	Ile	Glu	Ser	Ala 340	Met	Tyr	Leu	Tyr	Arc 345
Ala	Thr	Gly	Asp	Pro 350		Leu	Leu	Glu	Leu 355		Arg	Asp	Ala	Va]
Glu	Ser	Ile	Glu	Lys 365	Ile	Ser	Lys	Val	Glu 370	Суѕ	Gly	Phe	Ala	Th:
Ile	Lys	Asp	Leu	Arg 380	Asp	His	Lys	Leu	Asp 385	Asn	Arg	Met	Glu	Se:
Phe	Phe	Leu	Ala	Glu 395	Thr	Val	Lys	Tyr	Leu 400	Tyr	Leu	Leu	Phe	Asp 405
Pro	Thr	Asn	Phe	Ile 410	His	Asn	Asn	Gly	Ser 415	Thr	Phe	Asp	Ala	Val 420
Ile	Thr	Pro	Tyr	Gly 425	Glu	Суз	Ile	Leu	Gly 430	Ala	Gly	Gly	Tyr	Ile 435
Phe	Asn	Thr	Glu	Ala	His	Pro	Tle	Asp	Len	Ala	Ala	T.e11	His	Cvs

440 445 450 Cys Gln Arg Leu Lys Glu Glu Gln Trp Glu Val Glu Asp Leu Met Arg Glu Phe Tyr Ser Leu Lys Arg Ser Arg Ser Lys Phe Gln Lys 470 480 Asn Thr Val Ser Ser Gly Pro Trp Glu Pro Pro Ala Arg Pro Gly 485 490 Thr Leu Phe Ser Pro Glu Asn His Asp Gln Ala Arg Glu Arg Lys 500 Pro Ala Lys Gln Lys Val Pro Leu Leu Ser Cys Pro Ser Gln Pro Phe Thr Ser Lys Leu Ala Leu Leu Gly Gln Val Phe Leu Asp Ser 530 535 Ser

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Thr Asn Met Lys His Leu Leu Met Trp Ser Pro Val Ile Ala Pro
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                                      55
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Ser Leu Tyr Thr Ser His Ile Trp Ile Pro Ser Ser Trp Cys Ser
Leu Thr Glu Gly Pro Glu Cys Asp Val Thr Asp Asp Ile Thr Ala
                                     100
Thr Val Pro Tyr Asn Leu Arg Val Arg Ala Thr Leu Gly Ser Gln
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                                                         120
Thr Ser Ala Trp Ser Ile Leu Lys His Pro Phe Asn Arg Asn Ser
Thr Ile Leu Thr Arg Pro Gly Met Glu Ile Thr Lys Asp Gly Phe
His Leu Val Ile Glu Leu Glu Asp Leu Gly Pro Gln Phe Glu Phe
                                                         165
Leu Val Ala Tyr Trp Arg Arg Glu Pro Gly Ala Glu Glu His Val
Lys Met Val Arg Ser Gly Gly Ile Pro Val His Leu Glu Thr Met
                                                         195
Glu Pro Gly Ala Ala Tyr Cys Val Lys Ala Gln Thr Phe Val Lys
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                                                         210
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Lys Met Gly Arg Leu Leu Gln Tyr Ser Cys Cys Pro Val Val Val 270

Leu Pro Asp Thr Leu Lys Ile Thr Asn Ser Pro Gln Lys Leu Ile 285

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<211> 187

<212> PRT

<213> Homo sapiens

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Ala Ala Cys Ala Gl<br/>n Glu Glu Gln Asp Phe Tyr Asp Phe Lys Ala 20  $\phantom{000}25\phantom{000}$  30

Val Asn Ile Arg Gly Lys Leu Val Ser Leu Glu Lys Tyr Arg Gly 35 40 45

Ser Val Ser Leu Val Val As<br/>n Val Ala Ser Glu Cys Gly Phe Thr $50~{\rm 55}~{\rm 60}$ 

Asp Gln His Tyr Arg Ala Leu Gln Gln Leu Gln Arg Asp Leu Gly  $65 \phantom{000}70\phantom{000}$ 

Pro His His Phe Asn Val Leu Ala Phe Pro Cys Asn Gln Phe Gly 80 85

Gln Gln Glu Pro Asp Ser Asn Lys Glu Ile Glu Ser Phe Ala Arg 95 100 105

Arg Thr Tyr Ser Val Ser Phe Pro Met Phe Ser Lys Ile Ala Val 110 115 120

Thr Gly Thr Gly Ala His Pro Ala Phe Lys Tyr Leu Ala Gln Thr  $125 \\ \hspace*{1.5cm} 130 \\ \hspace*{1.5cm} 135$ 

Ser Gly Lys Glu Pro Thr Trp Asn Phe Trp Lys Tyr Leu Val Ala 140 145 150

Pro Asp Gly Lys Val Val Gly Ala Trp Asp Pro Thr Val Ser Val

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Glu Val Asp Arg Met Val Ser Thr Pro Ile Gly Gly Leu Ser Tyr
50 55 60

Val Gln Gly Cys Thr Lys Lys His Leu Asn Ser Lys Thr Val Gly 65 70 75

Gln Cys Leu Glu Thr Thr Ala Gln Arg Val Pro Glu Arg Glu Ala 80 85 90

Leu Val Val Leu His Glu Asp Val Arg Leu Thr Phe Ala Gln Leu 95 100 105

Lys Glu Glu Val Asp Lys Ala Ala Ser Gly Leu Leu Ser Ile Gly
110 115 120

Leu Cys Lys Gly Asp Arg Leu Gly Met Trp Gly Pro Asn Ser Tyr 125 130 135

Ala Trp Val Leu Met Gln Leu Ala Thr Ala Gln Ala Gly Ile Ile 140 145 150

Leu Val Ser Val Asn Pro Ala Tyr Gln Ala Met Glu Leu Glu Tyr 155 160 165

Val Leu Lys Lys Val Gly Cys Lys Ala Leu Val Phe Pro Lys Gln 170 175 180

Phe Lys Thr Gln Gln Tyr Tyr Asn Val Leu Lys Gln Ile Cys Pro 185 190 195

Glu Val Glu Asn Ala Gln Pro Gly Ala Leu Lys Ser Gln Arg Leu 200 205 210

Pro Asp Leu Thr Thr Val Ile Ser Val Asp Ala Pro Leu Pro Gly 215 220 225

Thr Leu Leu Leu Asp Glu Val Val Ala Ala Gly Ser Thr Arg Gln 230 235 240

His Leu Asp Gln Leu Gln Tyr Asn Gln Gln Phe Leu Ser Cys His

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Lys	Gly	Ala	a Thr	Leu 275	s Ser	His	Tyr	Asn	11e 280		. Asr	a Asn	Ser	285
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Leu	Arg	Met	: Ile	Leu 305	Pro	Asn	Pro	Leu	Туг 310		Cys	Leu	Gly	Ser 315
Val	Ala	Gly	Thr	Met 320	Met	Cys	Leu	Met	Tyr 325		' Ala	Thr	Leu	Ile 330
Leu	Ala	Ser	Pro	Ile 335	Phe	Asn	Gly	Lys	Lys 340		. Leu	Glu	Ala	11e 345
Ser	Arg	Glu	Arg	Gly 350	Thr	Phe	Leu	Tyr	Gly 355	Thr	Pro	Thr	Met	Phe 360
Val	Asp	Ile	Leu	Asn 365	Gln	Pro	Asp	Phe	Ser 370		Tyr	Asp	Ile	Ser 375
Thr	Met	Cys	Gly	Gly 380	Val	Ile	Ala	Gly	Ser 385	Pro	Ala	Pro	Pro	Glu 390
Leu	Ile	Arg	Ala	Ile 395	Ile	Asn	Lys	Ile	Asn 400		Lys	Asp	Leu	Val 405
Val	Ala	Tyr	Gly	Thr 410	Thr	Glu	Asn	Ser	Pro 415	Val	Thr	Phe	Ala	His 420
Phe	Pro	Glu	Asp	Thr 425	Val	Glu	Gln	Lys	Ala 430	Glu	Ser	Val	Gly	Arg 435
Ile	Met	Pro	His	Thr 440	Glu	Ala	Arg	Ile	Met 445	Asn	Met	Glu	Ala	Gly 450
Thr	Leu	Ala	Lys	Leu 455	Asn	Thr	Pro	Gly	Glu 460	Leu	Cys	Ile	Arg	Gly 465
Tyr	Cys	Val	Met	Leu 470	Gly	Tyr	Trp	Gly	Glu 475	Pro	Gln	Lys	Thr	Glu 480
Glu	Ala	Val	Asp	Gln 485	Asp	Lys	Trp	Tyr	Trp 490	Thr	Gly	Asp	Val	Ala 495
Thr	Met	Asn	Glu	Gln 500	Gly	Phe	Cys	Lys	Ile 505	Val	Gly	Arg	Ser	Lys 510
Asp	Met	Ile	Ile	Arg 515	Gly	Gly	Glu	Asn	Ile 520	Tyr	Pro	Ala	Glu	Leu 525
Glu	Asp	Phe	Phe	His 530	Thr	His	Pro	Lys	Val 535	Gln	Glu	Val	Gln	Val 540
Val	Gly	Val	Lys	Asp 545	Asp	Arg	Met	Gly	Glu 550	Glu	Ile	Cys	Ala	Cys 555
Ile	Arg	Leu	Lys	Asp	Gly	Glu	Glu	Thr	Thr	Val	Glu	Glu	Ile	Lys

570 560 565 Ala Phe Cys Lys Gly Lys Ile Ser His Phe Lys Ile Pro Lys Tyr 575 580 585 Ile Val Phe Val Thr Asn Tyr Pro Leu Thr Ile Ser Gly Lys Ile 595 Gln Lys Phe Lys Leu Arg Glu Gln Met Glu Arg His Leu Asn Leu 605 615 610 <210> 195

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<213> Homo sapiens

<400> 196

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ctccgagaca gggagtagaa cacgaggcct cccgggatga ggagcccagg 900
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<210> 197

<211> 346

<212> PRT

<213> Homo sapiens

<400> 197

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Ala Gly Trp Leu Leu Leu Leu Leu Leu Arg Gly Gly Ala Gln Ala 20 25 30

Leu Glu Cys Tyr Ser Cys Val Gln Lys Ala Asp Asp Gly Cys Ser

35 40 45

Pro Asn Lys Met Lys Thr Val Lys Cys Ala Pro Gly Val Asp Val Cys Thr Glu Ala Val Gly Ala Val Glu Thr Ile His Gly Gln Phe Ser Leu Ala Val Arg Gly Cys Gly Ser Gly Leu Pro Gly Lys Asn Asp Arg Gly Leu Asp Leu His Gly Leu Leu Ala Phe Ile Gln Leu Gln Gln Cys Ala Gln Asp Arg Cys Asn Ala Lys Leu Asn Leu Thr 110 115 Ser Arg Ala Leu Asp Pro Ala Gly Asn Glu Ser Ala Tyr Pro Pro 130 Asn Gly Val Glu Cys Tyr Ser Cys Val Gly Leu Ser Arg Glu Ala Cys Gln Gly Thr Ser Pro Pro Val Val Ser Cys Tyr Asn Ala Ser 160 Asp His Val Tyr Lys Gly Cys Phe Asp Gly Asn Val Thr Leu Thr 175 Ala Ala Asn Val Thr Val Ser Leu Pro Val Arg Gly Cys Val Gln 185 190 Asp Glu Phe Cys Thr Arg Asp Gly Val Thr Gly Pro Gly Phe Thr Leu Ser Gly Ser Cys Cys Gln Gly Ser Arg Cys Asn Ser Asp Leu Arg Asn Lys Thr Tyr Phe Ser Pro Arg Ile Pro Pro Leu Val Arg 235 Leu Pro Pro Pro Glu Pro Thr Thr Val Ala Ser Thr Thr Ser Val Thr Thr Ser Thr Ser Ala Pro Val Arg Pro Thr Ser Thr Thr Lys 260 265 Pro Met Pro Ala Pro Thr Ser Gln Thr Pro Arg Gln Gly Val Glu His Glu Ala Ser Arg Asp Glu Glu Pro Arg Leu Thr Gly Gly Ala 295 Ala Gly His Gln Asp Arg Ser Asn Ser Gly Gln Tyr Pro Ala Lys 310 Gly Gly Pro Gln Gln Pro His Asn Lys Gly Cys Val Ala Pro Thr Ala Gly Leu Ala Ala Leu Leu Leu Ala Val Ala Ala Gly Val Leu

Leu

<210> 198 <211> 1657 <212> DNA <213> Homo sapiens

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<210> 199

<211> 120

<212> PRT

<213> Homo sapiens

<400> 199

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Val Leu Ala Ser Ala Ala Glu Lys Glu Lys Glu Met Asp Pro Phe 20 25 30

His Tyr Asp Tyr Gln Thr Leu Arg Ile Gly Gly Leu Val Phe Ala 35 40 45

Val Val Leu Phe Ser Val Gly Ile Leu Leu Ile Leu Ser Arg Arg 50 55 60

Cys Lys Cys Ser Phe Asn Gln Lys Pro Arg Ala Pro Gly Asp Glu 65 70 75

Glu Ala Gln Val Glu Asn Leu Ile Thr Ala Asn Ala Thr Glu Pro 80 85 90

Gln Lys Gln Arg Thr Glu Val Gln Pro Ser Gly Gly Ser Leu Trp 95 100 105

Asn Leu Arg Arg Leu Leu Glu Pro Leu Asp Ala Asn Val Asp Ala 110 115 120

<210> 200

<211> 415

<212> DNA

<213> Homo sapiens

<400> 200

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cattttccat ccaaa 415
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<210> 201

<211> 99

<212> PRT

<213> Homo sapiens

<400> 201

Met Lys Ile Pro Val Leu Pro Ala Val Val Leu Leu Ser Leu Leu 1 5 10 15

Val Leu His Ser Ala Gln Gly Ala Thr Leu Gly Gly Pro Glu Glu 20 25 30

Glu Ser Thr Ile Glu Asn Tyr Ala Ser Arg Pro Glu Ala Phe Asn 35 40 45

Thr Pro Phe Leu Asn Ile Asp Lys Leu Arg Ser Ala Phe Lys Ala 50 55 60

Asp Glu Phe Leu Asn Trp His Ala Leu Phe Glu Ser Ile Lys Arg
65 70 75

Lys Leu Pro Phe Leu Asn Trp Asp Ala Phe Pro Lys Leu Lys Gly 80 85 90

Leu Arg Ser Ala Thr Pro Asp Ala Gln
95

<210> 202

<211> 678

<212> DNA

<213> Homo sapiens

<400> 202

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<210> 204 <211> 1917 <212> DNA

<213> Homo sapiens

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tacaatttgt aaaagcaaat gatgatgtag ctcaagagat tgctgaaagg 1050 ggaagccagt ttattaggaa ccatttgcag atggatgaca tcacctgtta 1100 ctgggagaac ctcttgagtg aatactctaa attcctgtct tataatgtaa 1150 cgagaaggaa aggttatgat caaattattc ccaaaatgtt gaaaactgaa 1200 ctatagtagt catcatagga ccatagtcct ctttgtggca acagatctca 1250 gatatcctac ggtgagaagc ttaccataag cttggctcct ataccttgaa 1300 tatctgctat caagccaaat acctggtttt ccttatcatg ctgcacccag 1350 agcaactett gagaaagatt taaaatgtgt etaatacaet gatatgaage 1400 agttcaactt tttggatgaa taaggaccag aaatcgtgag atgtggattt 1450 tgaacccaac tctacctttc attttcttaa gaccaatcac agcttgtgcc 1500 tcagatcatc cacctgtgtg agtccatcac tgtgaaattg actgtgtcca 1550 tgtgatgatg ccctttgtcc cattatttgg agcagaaaat tcgtcatttg 1600 gaagtagtac aactcattgc tggaattgtg aaattattca aggcgtgatc 1650 tctgtcactt tattttaatg taggaaaccc tatggggttt atgaaaaata 1700 aatgatgtag gagttctctt ttgtaaaacc ataaactctg ttactcagga 1800 ggtttctata atgccacata gaaagaggcc aattgcatga gtaattattg 1850 caattggatt tcaggttccc tttttgtgcc ttcatgccct acttcttaat 1900 gcctctctaa agccaaa 1917

<210> 205

<211> 392

<212> PRT

<213> Homo sapiens

<400> 205

Met Glu Trp Trp Ala Ser Ser Pro Leu Arg Leu Trp Leu Leu 1 5 10 15

Phe Leu Leu Pro Ser Ala Gln Gly Arg Gln Lys Glu Ser Gly Ser 20 25 30

Lys Trp Lys Val Phe Ile Asp Gln Ile Asn Arg Ser Leu Glu Asn 35 40 45

Tyr Glu Pro Cys Ser Ser Gln Asn Cys Ser Cys Tyr His Gly Val 50 55 60

Ile Glu Glu Asp Leu Thr Pro Phe Arg Gly Gly Ile Ser Arg Lys
65 70 75

Met Met Ala Glu Val Val Arg Arg Lys Leu Gly Thr His Tyr Gln 80 85 90

Ile Thr Lys Asn Arg Leu Tyr Arg Glu Asn Asp Cys Met Phe Pro

				95	<u> </u>				100	ı				105
Ser	Arg	g Cys	s Ser	Gly 110		. Glu	His	Ph∈	11e		Glu	ı Val	. Ile	Gly 120
Arg	J Leu	Pro	Asp	Met 125	Glu	u Met	: Val	. Ile	Asn 130		Arg	Asp	туг	Pro 135
Gln	Val	. Pro	Lys	Trp 140	Met	Glu	Pro	Ala	Ile 145		Val	Phe	e Ser	Phe 150
Ser	Lys	Thr	Ser	Glu 155	Tyr	His	Asp	Ile	Met 160	Tyr	Pro	Ala	Trp	Thr 165
Phe	Trp	Glu	Gly	Gly 170	Pro	Ala	Val	Trp	Pro 175	Ile	Tyr	Pro	Thr	Gly 180
Leu	Gly	Arg	Trp	Asp 185	Leu	Phe	Arg	Glu	Asp 190	Leu	Val	Arg	Ser	Ala 195
Ala	Gln	Trp	Pro	Trp 200	Lys	Lys	Lys	Asn	Ser 205	Thr	Ala	Tyr	Phe	Arg 210
Gly	Ser	Arg	Thr	Ser 215	Pro	Glu	Arg	Asp	Pro 220	Leu	Ile	Leu	Leu	Ser 225
Arg	Lys	Asn	Pro	Lys 230	Leu	Val	Asp	Ala	Glu 235	Tyr	Thr	Lys	Asn	Gln 240
Ala	Trp	Lys	Ser	Met 245	Lys	Asp	Thr	Leu	Gly 250	Lys	Pro	Ala	Ala	Lys 255
Asp	Val	His	Leu	Val 260	Asp	His	Cys	Lys	Tyr 265	Lys	Tyr	Leu	Phe	Asn 270
Phe	Arg	Gly	Val	Ala 275	Ala	Ser	Phe	Arg	Phe 280	Lys	His	Leu	Phe	Leu 285
Cys	Gly	Ser	Leu	Val 290	Phe	His	Val	Gly	Asp 295	Glu	Trp	Leu	Glu	Phe 300
Phe	Tyr	Pro	Gln	Leu 305	Lys	Pro	Trp	Val	His 310	Tyr	Ile	Pro	Val	Lys 315
Thr	Asp	Leu	Ser	Asn 320	Val	Gln	Glu	Leu	Leu 325	Gln	Phe	Val	Lys	Ala 330
Asn	Asp	Asp	Val	Ala 335	Gln	Glu	Ile	Ala	Glu 340	Arg	Gly	Ser	Gln	Phe 345
Ile	Arg	Asn	His	Leu 350	Gln	Met	Asp	Asp	Ile 355	Thr	Cys	Tyr	Trp	Glu 360
Asn	Leu	Leu	Ser	Glu 365	Tyr	Ser	Lys	Phe	Leu 370	Ser	Tyr	Asn	Val	Thr 375
Arg	Arg	Lys	Gly	Tyr 380	Asp	Gln	Ile	Ile	Pro 385	Lys	Met	Leu	Lys	Thr 390
Glu	Leu													

<210> 206

<211> 1425 <212> DNA <213> Homo sapiens

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<210> 207
 <211> 262
 <212> PRT
 <213> Homo sapiens
 <400> 207
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 Ile Leu Ala Phe Gly Thr Gly Val Glu Phe Val Arg Phe Thr Ser
 Leu Arg Pro Leu Leu Gly Gly Ile Pro Glu Ser Gly Gly Pro Asp
 Ala Arg Gln Gly Trp Leu Ala Ala Leu Gln Asp Arg Ser Ile Leu
 Ala Pro Leu Ala Trp Asp Leu Gly Leu Leu Leu Phe Val Gly
 Gln His Ser Leu Met Ala Ala Glu Arg Val Lys Ala Trp Thr Ser
 Arg Tyr Phe Gly Val Leu Gln Arg Ser Leu Tyr Val Ala Cys Thr
 Ala Leu Ala Leu Gln Leu Val Met Arg Tyr Trp Glu Pro Ile Pro
                 110
                                      115
 Lys Gly Pro Val Leu Trp Glu Ala Arg Ala Glu Pro Trp Ala Thr
 Trp Val Pro Leu Cys Phe Val Leu His Val Ile Ser Trp Leu
                                     145
 Leu Ile Phe Ser Ile Leu Leu Val Phe Asp Tyr Ala Glu Leu Met
                                     160
Gly Leu Lys Gln Val Tyr Tyr His Val Leu Gly Leu Gly Glu Pro
                                     175
 Leu Ala Leu Lys Ser Pro Arg Ala Leu Arg Leu Phe Ser His Leu
                 185
 Arg His Pro Val Cys Val Glu Leu Leu Thr Val Leu Trp Val Val
                                     205
 Pro Thr Leu Gly Thr Asp Arg Leu Leu Leu Ala Phe Leu Leu Thr
                 215
                                     220
 Leu Tyr Leu Gly Leu Ala His Gly Leu Asp Gln Gln Asp Leu Arg
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 Pro Gln Asp Gly Glu Ala Glu
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<210> 208
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<211> 2095

## <213> Homo sapiens

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<210> 209

<211> 331

<212> PRT

<213> Homo sapiens

<400> 209

Met Ala Ser Ala Leu Trp Thr Val Leu Pro Ser Arg Met Ser Leu 1 5 10 15

Arg Ser Leu Lys Trp Ser Leu Leu Leu Leu Ser Leu Leu Ser Phe 20 25 30

Phe Val Met Trp Tyr Leu Ser Leu Pro His Tyr Asn Val Ile Glu 35 40 45

Arg Val Asn Trp Met Tyr Phe Tyr Glu Tyr Glu Pro Ile Tyr Arg
50 55 60

Gln Asp Phe His Phe Thr Leu Arg Glu His Ser Asn Cys Ser His
65 70 75

Gln Asn Pro Phe Leu Val Ile Leu Val Thr Ser His Pro Ser Asp 80 85 90

Val Lys Ala Arg Gln Ala Ile Arg Val Thr Trp Gly Glu Lys Lys 95 100

Ser Trp Trp Gly Tyr Glu Val Leu Thr Phe Phe Leu Leu Gly Gln
110 115 120

Glu Ala Glu Lys Glu Asp Lys Met Leu Ala Leu Ser Leu Glu Asp 125 130 135

Glu His Leu Leu Tyr Gly Asp Ile Ile Arg Gln Asp Phe Leu Asp 140 145

Thr Tyr Asn Asn Leu Thr Leu Lys Thr Ile Met Ala Phe Arg Trp
155 160 165

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Val Thr Glu Phe Cys Pro Asn Ala Lys Tyr Val Met Lys Thr Asp
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Thr Asp Val Phe Ile Asn Thr Gly Asn Leu Val Lys Tyr Leu Leu
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Tyr Gln Glu Tyr Pro Phe Lys Val Phe Pro Pro Tyr Cys Ser Gly
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                                     235
                                                         240
Leu Gly Tyr Ile Met Ser Arg Asp Leu Val Pro Arg Ile Tyr Glu
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                                     250
Met Met Gly His Val Lys Pro Ile Lys Phe Glu Asp Val Tyr Val
Gly Ile Cys Leu Asn Leu Leu Lys Val Asn Ile His Ile Pro Glu
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Gln Leu Arg Arg Val Ile Ala Ala His Gly Phe Ser Ser Lys Glu
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<212> DNA

<213> Homo sapiens

<400> 210

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<211> 185

<212> PRT

<213> Homo sapiens

<400> 211

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Ala Pro Ala Leu Ala Asn Tyr Asn Ile Asn Val Asn Asp Asp Asn

Asn Asn Ala Gly Ser Gly Gln Gln Ser Val Ser Val Asn Asn Glu 45

His Asn Val Ala Asn Val Asp Asn Asn Gly Trp Asp Ser Trp

Asn Ser Ile Trp Asp Tyr Gly Asn Gly Phe Ala Ala Thr Arg Leu

Phe Gln Lys Lys Thr Cys Ile Val His Lys Met Asn Lys Glu Val 85

Met Pro Ser Ile Gln Ser Leu Asp Ala Leu Val Lys Glu Lys Lys

Leu Gln Gly Lys Gly Pro Gly Gly Pro Pro Pro Lys Gly Leu Met 115

Tyr Ser Val Asn Pro Asn Lys Val Asp Asp Leu Ser Lys Phe Gly 135

Lys Asn Ile Ala Asn Met Cys Arg Gly Ile Pro Thr Tyr Met Ala 145

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Tyr Thr Thr Ser Val Leu Trp Ile Val Asp Ile Ser Phe Cys Gly 170 180

Asp Thr Val Glu Asn 185

<210> 212

<211> 1706

<212> DNA

<213> Homo sapiens

<400> 212

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#### aaaagt 1706

<210> 213

<211> 299

<212> PRT

<213> Homo sapiens

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Gln Ile Pro Leu Pro Thr Arg Pro His Trp Phe Leu Leu Phe Gly
35 40

Thr Thr Glu Glu Glu Ile Gln Glu Ile Cys Ile Glu Thr Leu Arg
50 55 60

Leu Tyr Thr Arg Lys Lys Pro Asn Tyr Glu Leu Leu Glu Lys Glu 65 70 75

Val Glu Lys Arg Lys Val Ala Leu Gln Glu Ala Lys Leu Lys Ala 80 85 90

Lys Gly Leu Asn Pro Asp Gly Thr Pro Ala Leu Ser Thr Leu Gly 95 100 105

Gly Phe Ser Pro Ala Ser Lys Pro Ser Ser Pro Arg Glu Val Lys 110 115 120

Ala Glu Glu Lys Ser Pro Ile Ser Ile Asn Val Lys Thr Val Lys 125 130 135

Lys Glu Pro Glu Asp Arg Gln Gln Ala Ser Lys Ser Pro Tyr Asn 140 145 150

Gly Val Arg Lys Asp Ser Lys Arg Ser Arg Asn Ser Arg Ser Ala 155 160

Ser Arg Ser Arg Ser Arg Thr Arg Ser Arg Ser Arg Ser His Thr 170 175 180

Pro Arg Arg His Tyr Asn Asn Arg Arg Ser Arg Ser Gly Thr Tyr 185 190 195

Ser Ser Arg Ser Arg Ser Arg Ser Arg Ser His Ser Glu Ser Pro 200 205 210

Arg Arg His His Asn His Gly Ser Pro His Leu Lys Ala Lys His 215 220 225

Thr Arg Asp Asp Leu Lys Ser Ser Asn Arg His Gly His Lys Arg 230 235 240

Lys Lys Ser Arg Ser Arg Ser Gln Ser Lys Ser Arg Asp His Ser 245 250 255

Asp Ala Ala Lys Lys His Arg His Glu Arg Gly His His Arg Asp 260 265 270

Arg Arg Glu Arg Ser Arg Ser Phe Glu Arg Ser His Lys Ser Lys

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<210> 214

<211> 730

<212> DNA

<213> Homo sapiens

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<223> unknown base

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<210> 215

<211> 1807

<212> DNA

<213> Homo sapiens

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ctetgtaaeg geagttgtt eegatacaag eaecegtetg aggaggaget 200
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<211> 479 <212> PRT <213> Homo sapiens

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290 295 300 Thr Arg Phe Ser Leu Leu Ser Asp Ser Ala Phe Asp Ser Gly Arg 310 Leu Trp Leu Leu Val Val Leu Cys Leu Leu Arg Leu Ala Val Thr Arg Pro His Leu Gln Ala Tyr Leu Cys Leu Ala Lys Ala Arg Val 335 Glu Gln Leu Arg Arg Glu Ala Gly Arg Ile Glu Ala Arg Glu Ile 350 355 Gln Gln Arg Val Val Arg Val Tyr Cys Tyr Val Thr Val Val Ser 365 370 Leu Gln Tyr Leu Thr Pro Leu Ile Leu Thr Leu Asn Cys Thr Leu 385 Leu Leu Lys Thr Leu Gly Gly Tyr Ser Trp Gly Leu Gly Pro Ala 395 Pro Leu Leu Ser Pro Asp Pro Ser Ser Ala Ser Ala Ala Pro Ile 415 Gly Ser Gly Glu Asp Glu Val Gln Gln Thr Ala Ala Arg Ile Ala 430 Gly Ala Leu Gly Gly Leu Leu Thr Pro Leu Phe Leu Arg Gly Val 440 445 Leu Ala Tyr Leu Ile Trp Trp Thr Ala Ala Cys Gln Leu Leu Ala Ser Leu Phe Gly Leu Tyr Phe His Gln His Leu Ala Gly Ser <210> 217 <211> 574

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<211> 2571

<212> DNA

<213> Homo sapiens

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<sup>&</sup>lt;211> 632

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Homo sapiens

<sup>&</sup>lt;400> 219

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Pro	Glu	sei	r Ala	Ala 350		s Leu	ı Ile	Gln	Ala 355		Glu	ı Arç	g Aro	y Val 360
His	Lev	ı Val	L Val	Ser 365	Arg	g Gln	Val	Arg	Gln 370		s Ser	Pro	Asp	375
Phe	Glm	ı Glu	a Ala	Gly 380	Trp	Asn	. Ser	Asn	Gly 385		Trp	Ser	Pro	Gly 390
Pro	Gly	g Glu	a Arg	Ser 395	Asn	Thr	Pro	Lys	Pro 400	Leu	His	Pro	Thr	: Ile 405
Thr	Cys	His	s Glu	Lys 410		Val	Asn	Ile	Gln 415		Asp	Pro	Gly	Glu 420
Ser	Leu	Gly	Met	Thr 425	Val	Ala	Gly	Gly	Ala 430	Ser	His	Arg	Glu	Trp 435
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Ser	Arg	Asp	Gly	Arg 455	Ile	Lys	Thr	Gly	Asp 460	Ile	Leu	Leu	Asn	Val 465
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Leu	Leu	Lys	Arg	Thr 485	Ser	Ser	Ser	Ile	Val 490	Leu	Lys	Ala	Leu	Glu 495
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Ser	Trp	Val	Met	Trp 530	Leu	Glu	Leu	Pro	Arg 535	Cys	Leu	Tyr	Asn	Cys 540
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Phe	Ile	Lys	Ser	Ile 575	Val	Glu	Gly	Thr	Pro 580	Ala	Tyr	Asn	Asp	Gly 585
Arg	Ile	Arg	Cys	Gly 590	Asp	Ile	Leu	Leu	Ala 595	Val	Asn	Gly	Arg	Ser 600
Thr	Ser	Gly	Met	Ile 605	His	Ala	Cys	Leu	Ala 610	Arg	Leu	Leu	Lys	Glu 615
Leu	Lys	Gly	Arg	Ile 620	Thr	Leu	Thr	Ile	Val 625	Ser	Trp	Pro	Gly	Thr 630
Phe	Leu													

- <210> 220 <211> 773 <212> DNA
- <213> Homo sapiens

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- <210> 221
- <211> 184
- <212> PRT
- <213> Homo sapiens

aaaatataaa tgctgtattt ata 773

- <400> 221
- Met Lys Ile Leu Val Ala Phe Leu Val Val Leu Thr Ile Phe Gly

  1 10 15
- Ile Gln Ser His Gly Tyr Glu Val Phe Asn Ile Ile Ser Pro Ser 20 25 30
- Asn Asn Gly Gly Asn Val Gln Glu Thr Val Thr Ile Asp Asn Glu
  35 40
- Lys Asn Thr Ala Ile Val Asn Ile His Ala Gly Ser Cys Ser Ser 50 55 60
- Thr Thr Ile Phe Asp Tyr Lys His Gly Tyr Ile Ala Ser Arg Val 65 70 75
- Leu Ser Arg Arg Ala Cys Phe Ile Leu Lys Met Asp His Gln Asn 80 85 90

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IleProProLeuAsn<br/>95AsnLeuGlnTrpTyrIleTyrGluLysGlnAlaLeuAsnMet<br/>110PheSerAsnLysTyr<br/>115ThrTrpValLysTyr<br/>120AsnProLeuGluSerLeuIleLysAspValAspTrpPheLeuLeuGlySerProIleGluLysLeuCysLysHisIleProLeuTyrLysGlyGluValValGlyAsnThrHisAsnValGlyAlaGlyGlyCysAlaLysAlaGlyLeuGlyIleLeuGlyIleSerIleCysAla
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Asp Ile His Val

<210> 222 <211> 992 <212> DNA <213> Homo sapiens

<400> 222

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ggccatcagc gtgcactgtt cgtatttgga gttcatgcaa aatgagtgtg 950 ttttagctgc tcttgccaca aaaaaaaaaa aaaaaaaaa aa 992

<210> 223

<211> 265

<212> PRT

<213> Homo sapiens

<400> 223

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Ser Phe Ser Lys Ala Arg Glu Glu Glu Ile Thr Pro Val Val Ser 20 25 30

Ile Ala Tyr Lys Val Leu Glu Val Phe Pro Lys Gly Arg Trp Val
35 40 45

Leu Ile Thr Cys Cys Ala Pro Gln Pro Pro Pro Pro Ile Thr Tyr
50 55 60

Ser Leu Cys Gly Thr Lys Asn Ile Lys Val Ala Lys Lys Val Val
65 70 75

Lys Thr His Glu Pro Ala Ser Phe Asn Leu Asn Val Thr Leu Lys 80 85 90

Ser Ser Pro Asp Leu Leu Thr Tyr Phe Cys Arg Ala Ser Ser Thr 95 100 105

Ser Gly Ala His Val Asp Ser Ala Arg Leu Gln Met His Trp Glu 110 115 120

Leu Trp Ser Lys Pro Val Ser Glu Leu Arg Ala Asn Phe Thr Leu 125 130 135

Gln Asp Arg Gly Ala Gly Pro Arg Val Glu Met Ile Cys Gln Ala 140 145 150

Ser Ser Gly Ser Pro Pro Ile Thr Asn Ser Leu Ile Gly Lys Asp 155 160 165

Gly Gln Val His Leu Gln Gln Arg Pro Cys His Arg Gln Pro Ala 170 175 180

Asn Phe Ser Phe Leu Pro Ser Gln Thr Ser Asp Trp Phe Trp Cys 185 190 195

Gln Ala Ala Asn Asn Ala Asn Val Gln His Ser Ala Leu Thr Val 200 205 210

Val Pro Pro Gly Gly Asp Gln Lys Met Glu Asp Trp Gln Gly Pro 225 225

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Arg Leu Ser Glu Glu Glu Phe Gly Gly Phe Arg Ile Gly Asn Gly 245 250

Glu Val Arg Gly Arg Lys Ala Ala Ala Met 260 265 <210> 224

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<213> Homo sapiens
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 ctctctttgc tatgacatca ccqtcatccc taagttcaga cctggaccac 150
 ggtggtgtgc ggttcaaggc caggtggatg aaaagacttt tcttcactat 200
 gadtgtggca acaagacagt cacacctgtc agtcccctgg ggaagaaact 250
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 cccaaggaac ccctcaccct gcaggcaagg atgtcttgtg agcagaaagc 400
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 cttccattac ttctcaatgg gagactgtat aggatggctt gaggacttct 600
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<211> 246
<212> PRT
<213> Homo sapiens
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His Ser Leu Cys Tyr Asp Ile Thr Val Ile Pro Lys Phe Arg Pro
Gly Pro Arg Trp Cys Ala Val Gln Gly Gln Val Asp Glu Lys Thr
Phe Leu His Tyr Asp Cys Gly Asn Lys Thr Val Thr Pro Val Ser
Pro Leu Gly Lys Lys Leu Asn Val Thr Thr Ala Trp Lys Ala Gln
Asn Pro Val Leu Arg Glu Val Val Asp Ile Leu Thr Glu Gln Leu
                                     100
Arg Asp Ile Gln Leu Glu Asn Tyr Thr Pro Lys Glu Pro Leu Thr
                 110
                                     115
Leu Gln Ala Arg Met Ser Cys Glu Gln Lys Ala Glu Gly His Ser
Ser Gly Ser Trp Gln Phe Ser Phe Asp Gly Gln Ile Phe Leu Leu
                                     145
Phe Asp Ser Glu Lys Arg Met Trp Thr Thr Val His Pro Gly Ala
                155
                                     160
                                                         165
Arg Lys Met Lys Glu Lys Trp Glu Asn Asp Lys Val Val Ala Met
                170
                                     175
Ser Phe His Tyr Phe Ser Met Gly Asp Cys Ile Gly Trp Leu Glu
                 185
                                     190
                                                         195
Asp Phe Leu Met Gly Met Asp Ser Thr Leu Glu Pro Ser Ala Gly
Ala Pro Leu Ala Met Ser Ser Gly Thr Thr Gln Leu Arg Ala Thr
Ala Thr Thr Leu Ile Leu Cys Cys Leu Leu Ile Ile Leu Pro Cys
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Phe Ile Leu Pro Gly Ile
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<210> 226

<211> 735

<212> DNA

<213> Homo sapiens

<400> 226

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ggttttaatt ttggtggtag ccctcaccca attctggtgt ggctttcttt 200 gcagaggatt ccaccttcaa aatcatgaac tctggctgtt gatcaaaaga 250 gaatttggat tctactctaa aagtcaatat aggacttggc aaaagaagct 300 agcagaagac tcaacctggc ctcccataaa caggacagat tattcaggtg 350 atggcaaaaa tggattctac atcaacggag gctatgaaag ccatgaacag 400 attccaaaaa gaaaactcaa attgggaggc caacccacag aacagcattt 450 ctgggccagg ctgtaatcag aattgtcgtc gtacatgctc aacagcattg 500 ctttttccc caaaattaac acattgtgga gaagtgatga tactctccc 550 ttaccttcc tctctccatt caagcattca aagtatattt tcaatgaatt 600 aaaccttgca gcaagggacc ttagataggc ttattctgac tgtatgcttt 650 accaatgaga gaaaaaaaa caattacctt atcatcact 700 gtattcattt tgaaaaaaaa aaaaaaaaa aaaaaaaaa aaaaa 735

<210> 227 <211> 115 <212> PRT

<213> Homo sapiens

<400> 227

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Val Val Ala Leu Thr Gln Phe Trp Cys Gly Phe Leu Cys Arg Gly 20 25 30

Phe His Leu Gln Asn His Glu Leu Trp Leu Leu Ile Lys Arg Glu 35 40 45

Phe Gly Phe Tyr Ser Lys Ser Gln Tyr Arg Thr Trp Gln Lys Lys 50 55 60

Leu Ala Glu Asp Ser Thr Trp Pro Pro Ile Asn Arg Thr Asp Tyr 65 70 75

Ser Gly Asp Gly Lys Asn Gly Phe Tyr Ile Asn Gly Gly Tyr Glu 80 85 90

Ser His Glu Gln Ile Pro Lys Arg Lys Leu Lys Leu Gly Gln 95 100 105

Pro Thr Glu Gln His Phe Trp Ala Arg Leu
110 115

<210> 228

<211> 2185

<212> DNA

<213> Homo sapiens

<400> 228

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<210> 229 <211> 653

<212> PRT

<213> Homo sapiens

<400> 229

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Leu Lys Lys Leu Glu Tyr Ile Ser Glu Gly Ala Phe Glu Gly Leu

				185					190					195
Phe	Asn	Leu	Lys	Tyr 200	Leu	Asn	Leu	Gly	Met 205	Cys	Asn	Ile	Lys	Asp 210
Met	Pro	Asn	Leu	Thr 215	Pro	Leu	Val	Gly	Leu 220	Glu	Glu	Leu	Glu	Met 225
Ser	Gly	Asn	His	Phe 230	Pro	Glu	Ile	Arg	Pro 235	Gly	Ser	Phe	His	Gly 240
Leu	Ser	Ser	Leu	Lys 245	Lys	Leu	Trp	Val	Met 250	Asn	Ser	Gln	Val	Ser 255
Leu	Ile	Glu	Arg	Asn 260	Ala	Phe	Asp	Gly	Leu 265	Ala	Ser	Leu	Val	Glu 270
Leu	Asn	Leu	Ala	His 275	Asn	Asn	Leu	Ser	Ser 280	Leu	Pro	His	Asp	Leu 285
Phe	Thr	Pro	Leu	Arg 290	Tyr	Leu	Val	Glu	Leu 295	His	Leu	His	His	Asn 300
Pro	Trp	Asn	Cys	Asp 305	Cys	Asp	Ile	Leu	Trp 310	Leu	Ala	Trp	Trp	Leu 315
Arg	Glu	Tyr	Ile	Pro 320	Thr	Asn	Ser	Thr	Cys 325	Суѕ	Gly	Arg	Cys	His 330
Ala	Pro	Met	His	Met 335	Arg	Gly	Arg	Tyr	Leu 340	Val	Glu	Val	Asp	Gln 345
Ala	Ser	Phe	Gln	Cys 350	Ser	Ala	Pro	Phe	Ile 355	Met	Asp	Ala	Pro	Arg 360
Asp	Leu	Asn	Ile	Ser 365	Glu	Gly	Arg	Met	Ala 370	Glu	Leu	Lys	Cys	Arg 375
Thr	Pro	Pro	Met	Ser 380	Ser	Val	Lys	Trp	Leu 385	Leu	Pro	Asn	Gly	Thr 390
Val	Leu	Ser	His	Ala 395	Ser	Arg	His	Pro	Arg 400	Ile	Ser	Val	Leu	Asn 405
Asp	Gly	Thr	Leu	Asn 410	Phe	Ser	His	Val	Leu 415	Leu	Ser	Asp	Thr	Gly 420
Val	Tyr	Thr	Cys	Met 425	Val	Thr	Asn	Val	Ala 430	Gly	Asn	Ser	Asn	Ala 435
Ser	Ala	Tyr	Leu	Asn 440	Val	Ser	Thr	Ala	Glu 445	Leu	Asn	Thr	Ser	Asn 450
Tyr	Ser	Phe	Phe	Thr 455	Thr	Val	Thr	Val	Glu 460	Thr	Thr	Glu	Ile	Ser 465
Pro	Glu	Asp	Thr	Thr 470	Arg	Lys	Tyr	Lys	Pro 475	Val	Pro	Thr	Thr	Ser 480
Thr	Gly	Tyr	Gln	Pro 485	Ala	Tyr	Thr	Thr	Ser 490	Thr	Thr	Val	Leu	Ile 495
Gln	Thr	Thr	Arg	Val	Pro	Lys	Gln	Val	Ala	Val	Pro	Ala	Thr	Asp

	500		505			510					
Thr Thr Asp Ly:	Met Gln 515	Thr Ser	Leu Asp 520	Glu Val	Met Lys	Thr 525					
Thr Lys Ile Ile	e Ile Gly 530	Cys Phe	Val Ala 535	Val Thr	Leu Leu	Ala 540					
Ala Ala Met Le	ı Ile Val 545	Phe Tyr	Lys Leu 550	Arg Lys	Arg His	Gln 555					
Gln Arg Ser Th	r Val Thr 560	Ala Ala	Arg Thr 565	Val Glu	Ile Ile	Gln 570					
Val Asp Glu Asp	Ile Pro 575	Ala Ala	Thr Ser 580	Ala Ala	Ala Thr	Ala 585					
Ala Pro Ser Gl	y Val Ser 590	Gly Glu	Gly Ala 595	Val Val	Leu Pro	Thr 600					
Ile His Asp Hi	s Ile Asn 605	Tyr Asn	Thr Tyr 610	Lys Pro	Ala His	Gly 615					
Ala His Trp Th	r Glu Asn 620	Ser Leu	Gly Asn 625	Ser Leu	His Pro	Thr 630					
Val Thr Thr Ile	e Ser Glu 635	Pro Tyr	Ile Ile 640	Gln Thr	His Thr	Lys 645					
Asp Lys Val Gl	n Glu Thr 650	Gln Ile									
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<210> 230 <211> 2846 <212> DNA <213> Homo sapiens

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tcgggagtgc tgtgaatatg atcagattga gtgcgtctgc cccggaaaga 200
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<400> 231

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Leu Leu Leu Ile Ser Ser Leu Pro Arg Glu Tyr Thr Val Ile Asn 20 25 30

Glu Ala Cys Pro Gly Ala Ģlu Trp Asn Ile Met Cys Arg Glu Cys 35 40 45

Cys Glu Tyr Asp Gln Ile Glu Cys Val Cys Pro Gly Lys Arg Glu
50 55 60

Val Val Gly Tyr Thr Ile Pro Cys Cys Arg Asn Glu Glu Asn Glu 65 70 75

Cys Asp Ser Cys Leu Ile His Pro Gly Cys Thr Ile Phe Glu Asn 80 85 90

Cys Lys Ser Cys Arg Asn Gly Ser Trp Gly Gly Thr Leu Asp Asp  $95 \hspace{1.5cm} 100 \hspace{1.5cm} 105$ 

Phe Tyr Val Lys Gly Phe Tyr Cys Ala Glu Cys Arg Ala Gly Trp \$110\$ \$120\$

Tyr Gly Gly Asp Cys Met Arg Cys Gly Gln Val Leu Arg Ala Pro  $125 \,$  130  $\,$  135

Lys Gly Gln Ile Leu Leu Glu Ser Tyr Pro Leu Asn Ala His Cys 140 145 150

Glu Trp Thr Ile His Ala Lys Pro Gly Phe Val Ile Gln Leu Arg 155 160 165

Phe Val Met Leu Ser Leu Glu Phe Asp Tyr Met Cys Gln Tyr Asp Tyr Val Glu Val Arg Asp Gly Asp Asn Arg Asp Gly Gln Ile Ile 185 190 Lys Arg Val Cys Gly Asn Glu Arg Pro Ala Pro Ile Gln Ser Ile Gly Ser Ser Leu His Val Leu Phe His Ser Asp Gly Ser Lys Asn 220 Phe Asp Gly Phe His Ala Ile Tyr Glu Glu Ile Thr Ala Cys Ser Ser Ser Pro Cys Phe His Asp Gly Thr Cys Val Leu Asp Lys Ala 250 Gly Ser Tyr Lys Cys Ala Cys Leu Ala Gly Tyr Thr Gly Gln Arg Cys Glu Asn Leu Leu Glu Glu Arg Asn Cys Ser Asp Pro Gly Gly 275 Pro Val Asn Gly Tyr Gln Lys Ile Thr Gly Gly Pro Gly Leu Ile 300 Asn Gly Arg His Ala Lys Ile Gly Thr Val Val Ser Phe Phe Cys Asn Asn Ser Tyr Val Leu Ser Gly Asn Glu Lys Arg Thr Cys Gln 320 325 Gln Asn Gly Glu Trp Ser Gly Lys Gln Pro Ile Cys Ile Lys Ala 335 340 Cys Arg Glu Pro Lys Ile Ser Asp Leu Val Arg Arg Arg Val Leu 350 Pro Met Gln Val Gln Ser Arg Glu Thr Pro Leu His Gln Leu Tyr 370 Ser Ala Ala Phe Ser Lys Gln Lys Leu Gln Ser Ala Pro Thr Lys Lys Pro Ala Leu Pro Phe Gly Asp Leu Pro Met Gly Tyr Gln His 400 Leu His Thr Gln Leu Gln Tyr Glu Cys Ile Ser Pro Phe Tyr Arg 410 415 Arg Leu Gly Ser Ser Arg Arg Thr Cys Leu Arg Thr Gly Lys Trp 425 430 Ser Gly Arg Ala Pro Ser Cys Ile Pro Ile Cys Gly Lys Ile Glu Asn Ile Thr Ala Pro Lys Thr Gln Gly Leu Arg Trp Pro Trp Gln 455 Ala Ala Ile Tyr Arg Arg Thr Ser Gly Val His Asp Gly Ser Leu 475

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His Lys Gly Ala Trp Phe Leu Val Cys Ser Gly Ala Leu Val Asn
                 485
 Glu Arg Thr Val Val Val Ala Ala His Cys Val Thr Asp Leu Gly
                 500
                                     505
 Lys Val Thr Met Ile Lys Thr Ala Asp Leu Lys Val Val Leu Gly
 Lys Phe Tyr Arg Asp Asp Asp Asp Glu Lys Thr Ile Gln Ser
                 530
                                     535
 Leu Gln Ile Ser Ala Ile Ile Leu His Pro Asn Tyr Asp Pro Ile
                                     550
 Leu Leu Asp Ala Asp Ile Ala Ile Leu Lys Leu Leu Asp Lys Ala
                 560
                                     565
 Arg Ile Ser Thr Arg Val Gln Pro Ile Cys Leu Ala Ala Ser Arg
                 575
                                     580
 Asp Leu Ser Thr Ser Phe Gln Glu Ser His Ile Thr Val Ala Gly
                                     595
 Trp Asn Val Leu Ala Asp Val Arg Ser Pro Gly Phe Lys Asn Asp
                                     610
 Thr Leu Arg Ser Gly Val Val Ser Val Val Asp Ser Leu Leu Cys
                 620
 Glu Glu Gln His Glu Asp His Gly Ile Pro Val Ser Val Thr Asp
                                     640
 Asn Met Phe Cys Ala Ser Trp Glu Pro Thr Ala Pro Ser Asp Ile
 Cys Thr Ala Glu Thr Gly Gly Ile Ala Ala Val Ser Phe Pro Gly
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                                     670
 Arg Ala Ser Pro Glu Pro Arg Trp His Leu Met Gly Leu Val Ser
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                                     700
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<213> Homo sapiens
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 caaattccga ttactgttgc tgttgacttt gtqcctgaca gtggttgggt 200
 gggccaccag taactacttc gtgggtgcca ttcaagagat tcctaaagca 250
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 gatctcactt tggaagaggt acaggcagaa aatcccaaag tgtccagagg 450
 coggtatogo cotoaggaat gtaaagettt acagagggto gecatootog 500
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 ccaggctgaa ggtaaaaagt ttaatcgagc caaactcttg aatgtgggct 650
 atctagaagc cctcaaggaa gaaaattggg actgctttat attccacgat 700
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<210> 236
<211> 344
<212> PRT
<213> Homo sapiens
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<223> Signal peptide
<220>
<221> N-glycosylation sites
<222> 4-7, 220-223, 335-338
<223> N-glycosylation sites
<220>
<221> Xylose isomerase proteins
<222> 191-201
<223> Xylose isomerase proteins
<400> 236
Met Gly Phe Asn Leu Thr Phe His Leu Ser Tyr Lys Phe Arg Leu
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10

15

Leu Leu Leu Thr Leu Cys Leu Thr Val Val Gly Trp Ala Thr Ser Asn Tyr Phe Val Gly Ala Ile Gln Glu Ile Pro Lys Ala Lys Glu Phe Met Ala Asn Phe His Lys Thr Leu Ile Leu Gly Lys Gly Lys Thr Leu Thr Asn Glu Ala Ser Thr Lys Lys Val Glu Leu Asp Asn Cys Pro Ser Val Ser Pro Tyr Leu Arg Gly Gln Ser Lys Leu Ile Phe Lys Pro Asp Leu Thr Leu Glu Glu Val Gln Ala Glu Asn 9.5 100 Pro Lys Val Ser Arg Gly Arg Tyr Arg Pro Gln Glu Cys Lys Ala Leu Gln Arg Val Ala Ile Leu Val Pro His Arg Asn Arg Glu Lys 130 His Leu Met Tyr Leu Leu Glu His Leu His Pro Phe Leu Gln Arg 145 150 Gln Gln Leu Asp Tyr Gly Ile Tyr Val Ile His Gln Ala Glu Gly Lys Lys Phe Asn Arg Ala Lys Leu Leu Asn Val Gly Tyr Leu Glu 170 175 Ala Leu Lys Glu Glu Asn Trp Asp Cys Phe Ile Phe His Asp Val 185 190 Asp Leu Val Pro Glu Asn Asp Phe Asn Leu Tyr Lys Cys Glu Glu 200 205 His Pro Lys His Leu Val Val Gly Arg Asn Ser Thr Gly Tyr Arg Leu Arg Tyr Ser Gly Tyr Phe Gly Gly Val Thr Ala Leu Ser Arg 230 235 Glu Gln Phe Phe Lys Val Asn Gly Phe Ser Asn Asn Tyr Trp Gly Trp Gly Glu Asp Asp Asp Leu Arg Leu Arg Val Glu Leu Gln 265 Arg Met Lys Ile Ser Arg Pro Leu Pro Glu Val Gly Lys Tyr Thr 280 Met Val Phe His Thr Arg Asp Lys Gly Asn Glu Val Asn Ala Glu Arg Met Lys Leu Leu His Gln Val Ser Arg Val Trp Arg Thr Asp 305 310 Gly Leu Ser Ser Cys Ser Tyr Lys Leu Val Ser Val Glu His Asn 320 325

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<210> 238
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<212> DNA
<213> Artificial Sequence
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<400> 238
gagetteate egttetgegt teace 25
<210> 239
<211> 46
<212> DNA
<213> Artificial Sequence
<223> Synthetic oligonucleotide probe
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<210> 240
<211> 2567
<212> DNA
<213> Homo sapiens
<400> 240
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 ccgcatcctc tggcttgcct gcctcctgcc ctgggccccg gcaggggtgg 200
 ccgcaggcct gtatgaactc aatctcacca ccgatagccc tgccaccacg 250
 ggagcggtgg tgaccatctc ggccagcctg gtggccaagg acaacggcag 300
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 ccccgctggt gcttactggc aagatggaga agggtctcag ctccaccatc 400
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 tccccatcac agagttcctc gtgggggacc ttgttgtcac ccagaacact 550
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tecetaceet ggeecagete etateteaet aagacegtee tgaaagtete 600 cttcctcctc cacgacccga gcaacttcct caagaccgcc ttgtttctct 650 acagctggga cttcggggac gggacccaga tggtgactga agactccgtg 700 gtctattata actattccat catcgggacc ttcaccgtga agctcaaagt 750 ggtggcggag tgggaagagg tggagccgga tgccacgagg gctgtgaagc 800 agaagaccgg ggacttctcc gcctcgctga agctgcagga aacccttcga 850 ggcatccaag tgttggggcc caccctaatt cagaccttcc aaaagatgac 900 cgtgaccttg aacttcctgg ggagccctcc tctgactgtg tgctggcgtc 950 tcaagcetga gtgeeteeeg etggaggaag gggagtgeea eeetgtgtee 1000 gtggccagca cagcgtacaa cctgacccac accttcaggg accctgggga 1050 ctactgcttc agcatccggg ccgagaatat catcagcaag acacatcagt 1100 accacaagat ccaggtgtgg ccctccagaa tccagccggc tgtctttgct 1150 ttcccatgtg ctacacttat cactgtgatg ttggccttca tcatgtacat 1200 gaccctgcgg aatgccactc agcaaaagga catggtggag aacccggagc 1250 caccetetgg ggteaggtge tgetgeeaga tgtgetgtgg geetttettg 1300 ctggagactc catctgagta cctggaaatt gttcgtgaga accacgggct 1350 gctcccgccc ctctataagt ctgtcaaaac ttacaccgtg tgagcactcc 1400 ccctccccac cccatctcag tgttaactga ctgctgactt ggagtttcca 1450 gcagggtggt gtgcaccact gaccaggagg ggttcatttg cgtggggctg 1500 ttggcctgga tcatccatcc atctgtacag ttcagccact gccacaagcc 1550 cctccctctc tgtcacccct gaccccagcc attcacccat ctgtacagtc 1600 cagccactga cataagcccc actcggttac cacccccttg accccctacc 1650 tttgaagagg cttcgtgcag gactttgatg cttggggtgt tccgtgttga 1700 ctcctaggtg ggcctggctg cccactgccc attcctctca tattggcaca 1750 tctgctgtcc attgggggtt ctcagtttcc tcccccagac agccctacct 1800 gtgccagaga gctagaaaga aggtcataaa gggttaaaaa tccataacta 1850 aaggttgtac acatagatgg gcacactcac agagagaagt gtgcatgtac 1900 acacaccaca cacacacaca cacacacaca cacagaaata taaacacatg 1950 cgtcacatgg gcatttcaga tgatcagctc tgtatctggt taagtcggtt 2000 gctgggatgc accctgcact agagctgaaa ggaaatttga cctccaagca 2050 gccctgacag gttctgggcc cgggccctcc ctttgtgctt tgtctctgca 2100 gttcttgcgc cctttataag gccatcctag tccctgctgg ctggcagggg 2150

cctggatgg gggcaggact aatactgagt gattgcagag tgctttataa 2200 atatcacctt attttatcga aacccatctg tgaaactttc actgaggaaa 2250 aggccttgca gcggtagaag aggttgagtc aaggccgggc gcggtggctc 2300 acgcctgtaa tcccagcact ttgggaggcc gaggcgggtg gatcacgaga 2350 tcaggagatc gagaccaccc tggctaacac ggtgaaaccc cgtctctact 2400 aaaaaaatac aaaaagttag ccgggcgtgg tggtgggtgc ctgtagtccc 2450 agctactcgg gaggctgagg caggagaatg gtgcgaaccc gggaggcgga 2500 gcttgcagtg agcccagatg gcgccactgc actccagcct gagtgacaga 2550 gcgagactct gtctcca 2567

<210> 241 <211> 423 <212> PRT

<213> Homo sapiens

<400> 241

Met Ala Gln Ala Val Trp Ser Arg Leu Gly Arg Ile Leu Trp Leu  $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$ 

Ala Cys Leu Pro Trp Ala Pro Ala Gly Val Ala Ala Gly Leu  $20 \\ 25 \\ 30$ 

Tyr Glu Leu Asn Leu Thr Thr Asp Ser Pro Ala Thr Thr Gly Ala 35 40 45

Val Val Thr Ile Ser Ala Ser Leu Val Ala Lys Asp Asn Gly Ser 50 55 60

Leu Ala Leu Pro Ala Asp Ala His Leu Tyr Arg Phe His Trp Ile
65 70 75

His Thr Pro Leu Val Leu Thr Gly Lys Met Glu Lys Gly Leu Ser 80 85 90

Ser Thr Ile Arg Val Val Gly His Val Pro Gly Glu Phe Pro Val 95 100 105

Ser Val Trp Val Thr Ala Ala Asp Cys Trp Met Cys Gln Pro Val 110 115

Ala Arg Gly Phe Val Val Leu Pro Ile Thr Glu Phe Leu Val Gly 125 130 135

Asp Leu Val Val Thr Gln Asn Thr Ser Leu Pro Trp Pro Ser Ser 140 145 150

Tyr Leu Thr Lys Thr Val Leu Lys Val Ser Phe Leu Leu His Asp 155 160 160

Pro Ser Asn Phe Leu Lys Thr Ala Leu Phe Leu Tyr Ser Trp Asp 170 175 180

Phe Gly Asp Gly Thr Gln Met Val Thr Glu Asp Ser Val Val Tyr 185 190 195

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Tyr Asn Tyr Ser Ile Ile Gly Thr Phe Thr Val Lys Leu Lys Val
                200
                                    205
Val Ala Glu Trp Glu Glu Val Glu Pro Asp Ala Thr Arg Ala Val
                215
Lys Gln Lys Thr Gly Asp Phe Ser Ala Ser Leu Lys Leu Gln Glu
Thr Leu Arg Gly Ile Gln Val Leu Gly Pro Thr Leu Ile Gln Thr
                245
Phe Gln Lys Met Thr Val Thr Leu Asn Phe Leu Gly Ser Pro Pro
Leu Thr Val Cys Trp Arg Leu Lys Pro Glu Cys Leu Pro Leu Glu
Glu Gly Glu Cys His Pro Val Ser Val Ala Ser Thr Ala Tyr Asn
Leu Thr His Thr Phe Arg Asp Pro Gly Asp Tyr Cys Phe Ser Ile
                                    310
                305
Arg Ala Glu Asn Ile Ile Ser Lys Thr His Gln Tyr His Lys Ile
                                    325
                320
Gln Val Trp Pro Ser Arg Ile Gln Pro Ala Val Phe Ala Phe Pro
Cys Ala Thr Leu Ile Thr Val Met Leu Ala Phe Ile Met Tyr Met
                350
                                    355
Thr Leu Arg Asn Ala Thr Gln Gln Lys Asp Met Val Glu Asn Pro
                365
                                    370
Glu Pro Pro Ser Gly Val Arg Cys Cys Gln Met Cys Cys Gly
                380
                                    385
Pro Phe Leu Leu Glu Thr Pro Ser Glu Tyr Leu Glu Ile Val Arg
Glu Asn His Gly Leu Leu Pro Pro Leu Tyr Lys Ser Val Lys Thr
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Tyr Thr Val

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catttcctta ccctggaccc agctcc 26

<sup>&</sup>lt;211> 26

<sup>&</sup>lt;212> DNA

<sup>&</sup>lt;213> Artificial Sequence

<sup>&</sup>lt;220°

<sup>&</sup>lt;223> Synthetic oligonucleotide probe

<sup>&</sup>lt;400> 242

<sup>&</sup>lt;210> 243

<sup>&</sup>lt;211> 25

<sup>&</sup>lt;212> DNA

<sup>&</sup>lt;213> Artificial Sequence

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<223> Synthetic oligonucleotide probe
<400> 243
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<211> 46
<212> DNA
<213> Artificial Sequence
<220>
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<400> 244
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<211> 485
<212> DNA
<213> Homo sapiens
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 gctcccagat ctgggccgct tgcctcctgc tcctcctcct cctcgccagc 100
 ctgaccagtg gctctgtttt cccacaacag acgggacaac ttgcagagct 150
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 gaacataggt cttggaataa aatggctggt tcttttgttt tccaaaaaaa 400
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<210> 246
<211> 84
<212> PRT
<213> Homo sapiens
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 Leu Leu Leu Ala Ser Leu Thr Ser Gly Ser Val Phe Pro Gln Gln
 Thr Gly Gln Leu Ala Glu Leu Gln Pro Gln Asp Arg Ala Gly Ala
 Arg Ala Ser Trp Met Pro Met Phe Gln Arg Arg Arg Arg Asp
 Thr His Phe Pro Ile Cys Ile Phe Cys Cys Gly Cys Cys His Arg
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## Ser Lys Cys Gly Met Cys Cys Lys Thr

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<212> DNA

<213> Homo sapiens

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<210> 248

<211> 456

<212> PRT

<213> Homo sapiens

<400> 248

Met Phe Leu Leu Pro Phe Asp Ser Leu Ile Val Asn Leu Leu  $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$ 

Gly Ile Ser Leu Thr Val Leu Phe Thr Leu Leu Val Phe Ile  $20 \\ 25 \\ 30$ 

Ile Val Pro Ala Ile Phe Gly Val Ser Phe Gly Ile Arg Lys Leu 35 40 45

Tyr Met Lys Ser Leu Leu Lys Ile Phe Ala Trp Ala Thr Leu Arg 50 55 60

Met Glu Arg Gly Ala Lys Glu Lys Asn His Gln Leu Tyr Lys Pro
65 70 75

Tyr Thr Asn Gly Ile Ile Ala Lys Asp Pro Thr Ser Leu Glu Glu Glu Ile Lys Glu Ile Arg Arg Ser Gly Ser Ser Lys Ala Leu Asp Asn Thr Pro Glu Phe Glu Leu Ser Asp Ile Phe Tyr Phe Cys Arg 110 115 Lys Gly Met Glu Thr Ile Met Asp Asp Glu Val Thr Lys Arg Phe Ser Ala Glu Glu Leu Glu Ser Trp Asn Leu Leu Ser Arg Thr Asn Tyr Asn Phe Gln Tyr Ile Ser Leu Arg Leu Thr Val Leu Trp Gly 160 Leu Gly Val Leu Ile Arg Tyr Cys Phe Leu Leu Pro Leu Arg Ile 175 Ala Leu Ala Phe Thr Gly Ile Ser Leu Leu Val Val Gly Thr Thr 185 190 Val Val Gly Tyr Leu Pro Asn Gly Arg Phe Lys Glu Phe Met Ser Lys His Val His Leu Met Cys Tyr Arg Ile Cys Val Arg Ala Leu Thr Ala Ile Ile Thr Tyr His Asp Arg Glu Asn Arg Pro Arg Asn 235 Gly Gly Ile Cys Val Ala Asn His Thr Ser Pro Ile Asp Val Ile 245 250 Ile Leu Ala Ser Asp Gly Tyr Tyr Ala Met Val Gly Gln Val His 260 265 Gly Gly Leu Met Gly Val Ile Gln Arg Ala Met Val Lys Ala Cys 280 Pro His Val Trp Phe Glu Arg Ser Glu Val Lys Asp Arg His Leu 290 Val Ala Lys Arg Leu Thr Glu His Val Gln Asp Lys Ser Lys Leu 310 Pro Ile Leu Ile Phe Pro Glu Gly Thr Cys Ile Asn Asn Thr Ser 330 Val Met Met Phe Lys Lys Gly Ser Phe Glu Ile Gly Ala Thr Val 340 Tyr Pro Val Ala Ile Lys Tyr Asp Pro Gln Phe Gly Asp Ala Phe Trp Asn Ser Ser Lys Tyr Gly Met Val Thr Tyr Leu Leu Arg Met 370 Met Thr Ser Trp Ala Ile Val Cys Ser Val Trp Tyr Leu Pro Pro

385

Met Thr Arg Glu Ala Asp Glu Asp Ala Val Gln Phe Ala Asn Arg 405

Val Lys Ser Ala Ile Ala Arg Gln Gly Gly Leu Val Asp Leu Leu 420

Trp Asp Gly Gly Leu Lys Arg Glu Lys Val Lys Asp Thr Phe Lys 435

Glu Glu Gln Gln Gln Lys Leu Tyr Ser Lys Met 11e Val Gly Asn His 450

Lys Asp Arg Ser Arg Ser 455

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<213> Homo sapiens

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gga 1103
<210> 250
<211> 240
<212> PRT
<213> Homo sapiens
<400> 250
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Leu Ala Pro Asp Thr Phe Asp Asp Thr Tyr Val Gly Cys Ala Glu
Glu Met Glu Glu Lys Ala Ala Pro Leu Lys Glu Glu Met Ala
His His Ala Leu Leu Arg Glu Ser Trp Glu Ala Ala Gln Glu Thr
Trp Glu Asp Lys Arg Arg Gly Leu Thr Leu Pro Pro Gly Phe Lys
Ala Gln Asn Gly Ile Ala Ile Met Val Tyr Thr Asn Ser Ser Asn
                                     100
Thr Leu Tyr Trp Glu Leu Asn Gln Ala Val Arg Thr Gly Gly Gly
                110
Ser Arg Glu Leu Tyr Met Arg His Phe Pro Phe Lys Ala Leu His
Phe Tyr Leu Ile Arg Ala Leu Gln Leu Leu Arg Gly Ser Gly Gly
Cys Ser Arg Gly Pro Gly Glu Val Val Phe Arg Gly Val Gly Ser
Leu Arg Phe Glu Pro Lys Arg Leu Gly Asp Ser Val Arg Leu Gly
                                     175
Gln Phe Ala Ser Ser Ser Leu Asp Lys Ala Val Ala His Arg Phe
                 185
                                    190
                                                         195
Gly Glu Lys Arg Arg Gly Cys Val Ser Ala Pro Gly Val Gln Leu
                 200
                                     205
Gly Ser Gln Ser Glu Gly Ala Ser Ser Leu Pro Pro Trp Lys Thr
Leu Leu Ala Pro Gly Glu Phe Gln Leu Ser Gly Val Gly Pro
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<211> 50
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<sup>&</sup>lt;212> DNA

<sup>&</sup>lt;213> Artificial Sequence

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 <400> 251
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 <210> 252
 <211> 1076
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 <213> Homo sapiens
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  caacatgeet caecetcate tatateettt ggeageteae agggteagea 100
  gcctctggac ccgtgaaaga gctggtcggt tccgttggtg gggccgtgac 150
  tttccccctg aagtccaaag taaagcaagt tgactctatt gtctggacct 200
  tcaacacaac ccctcttgtc accatacagc cagaaggggg cactatcata 250
  gtgacccaaa atcgtaatag ggagagagta gacttcccag atggaggcta 300
  ctccctgaag ctcagcaaac tgaagaagaa tgactcaggg atctactatg 350
  tggggatata cagctcatca ctccagcagc cctccaccca ggagtacgtg 400
 ctgcatgtct acgagcacct gtcaaagcct aaagtcacca tgggtctgca 450
 gagcaataag aatggcacct gtgtgaccaa tctgacatgc tgcatggaac 500
 atggggaaga ggatgtgatt tatacctgga aggccctggg gcaagcagcc 550
 aatgagtccc ataatgggtc catcctcccc atctcctgga gatggggaga 600
 aagtgatatg accttcatct gcgttgccag gaaccctgtc agcagaaact 650
 teteaagece cateettgee aggaagetet gtgaaggtge tgetgatgae 700
 ccagatteet ecatggteet eetgtgtete etgttggtge eeeteetget 750
 cagtctcttt gtactggggc tatttctttg gtttctgaag agagagagac 800
 aagaagagta cattgaagag aagaagagag tggacatttg tcgggaaact 850
 cctaacatat gcccccattc tggagagaac acagagtacg acacaatccc 900
 tcacactaat agaacaatcc taaaggaaga tccagcaaat acggtttact 950
 ccactgtgga aataccgaaa aagatggaaa atccccactc actgctcacg 1000
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 agtgcactcc cctaagtctc tgctca 1076
<210> 253
<211> 335
<212> PRT
<213> Homo sapiens
<400> 253
Met Ala Gly Ser Pro Thr Cys Leu Thr Leu Ile Tyr Ile Leu Trp
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10 15 Gln Leu Thr Gly Ser Ala Ala Ser Gly Pro Val Lys Glu Leu Val Gly Ser Val Gly Gly Ala Val Thr Phe Pro Leu Lys Ser Lys Val Lys Gln Val Asp Ser Ile Val Trp Thr Phe Asn Thr Thr Pro Leu Val Thr Ile Gln Pro Glu Gly Gly Thr Ile Ile Val Thr Gln Asn Arg Asn Arg Glu Arg Val Asp Phe Pro Asp Gly Gly Tyr Ser Leu Lys Leu Ser Lys Leu Lys Lys Asn Asp Ser Gly Ile Tyr Tyr Val 100 Gly Ile Tyr Ser Ser Ser Leu Gln Gln Pro Ser Thr Gln Glu Tyr 110 115 Val Leu His Val Tyr Glu His Leu Ser Lys Pro Lys Val Thr Met Gly Leu Gln Ser Asn Lys Asn Gly Thr Cys Val Thr Asn Leu Thr Cys Cys Met Glu His Gly Glu Glu Asp Val Ile Tyr Thr Trp Lys 160 165 Ala Leu Gly Gln Ala Ala Asn Glu Ser His Asn Gly Ser Ile Leu 170 175 Pro Ile Ser Trp Arg Trp Gly Glu Ser Asp Met Thr Phe Ile Cys 185 190 Val Ala Arg Asn Pro Val Ser Arg Asn Phe Ser Ser Pro Ile Leu Ala Arg Lys Leu Cys Glu Gly Ala Ala Asp Asp Pro Asp Ser Ser 215 Met Val Leu Cys Leu Leu Leu Val Pro Leu Leu Ser Leu 230 235 Phe Val Leu Gly Leu Phe Leu Trp Phe Leu Lys Arg Glu Arg Gln Glu Glu Tyr Ile Glu Glu Lys Lys Arg Val Asp Ile Cys Arg Glu 260 265 270 Thr Pro Asn Ile Cys Pro His Ser Gly Glu Asn Thr Glu Tyr Asp Thr Ile Pro His Thr Asn Arg Thr Ile Leu Lys Glu Asp Pro Ala Asn Thr Val Tyr Ser Thr Val Glu Ile Pro Lys Lys Met Glu Asn 310 Pro His Ser Leu Leu Thr Met Pro Asp Thr Pro Arg Leu Phe Ala

Harry Harry Harry

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320 325 330

Tyr Glu Asn Val Ile 335

<210> 254

<211> 1053

<212> DNA

<213> Homo sapiens

<400> 254

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aaa 1053

<210> 255

<211> 860

<212> DNA

<213> Homo sapiens

<400> 255

gaaagacgtg gtcctgacag acagacaatc ctattcccta ccaaaatgaa 50

gatgctgctg ctgctgtgtt tgggactgac cctagtctgt gtccatgcag 100 aagaagctag ttctacggga aggaacttta atgtaqaaaa gattaatggg 150 qaatqqcata ctattatcct ggcctctgac aaaagagaaa agatagaaga 200 acatggcaac tttagacttt ttctggagca aatccatgtc ttggagaatt 250 ccttagttct taaagtccat actgtaagag atgaagagtg ctccgaatta 300 tctatggttg ctgacaaaac agaaaaggct ggtgaatatt ctgtgacgta 350 tgatggattc aatacattta ctatacctaa gacagactat gataactttc 400 ttatggctca cctcattaac gaaaaggatg gggaaacctt ccagctgatg 450 gggctctatg gccgagaacc agatttgagt tcagacatca aggaaaggtt 500 tgcacaacta tgtgaggagc atggaatcct tagagaaaat atcattgacc 550 tatccaatgc caatcgctgc ctccaggccc gagaatgaag aatggcctga 600 gcctccagtg ttgagtggac acttctcacc aggactccac catcatccct 650 tectatecat acageatece cagtataaat tetgtgatet geattecate 700 ctgtctcact gagaagtcca attccagtct atcaacatgt tacctaggat 750 acctcatcaa gaatcaaaga cttctttaaa tttctctttq atacaccctt 800 gacaattttt catgaaatta ttcctcttcc tgttcaataa atgattaccc 850 ttgcacttaa 860

<210> 256

<211> 180

<212> PRT

<213> Homo sapiens

<400> 256

Met Lys Met Leu Leu Leu Cys Leu Gly Leu Thr Leu Val Cys 1 5 10 15

Val His Ala Glu Glu Ala Ser Ser Thr Gly Arg Asn Phe Asn Val

Glu Lys Ile Asn Gly Glu Trp His Thr Ile Ile Leu Ala Ser Asp 35 40 45

Lys Arg Glu Lys Ile Glu Glu His Gly Asn Phe Arg Leu Phe Leu 50 55 60

Glu Gln Ile His Val Leu Glu Asn Ser Leu Val Leu Lys Val His
65 70 75

Thr Val Arg Asp Glu Glu Cys Ser Glu Leu Ser Met Val Ala Asp 80 85 90

Lys Thr Glu Lys Ala Gly Glu Tyr Ser Val Thr Tyr Asp Gly Phe 95 100

Asn Thr Phe Thr Ile Pro Lys Thr Asp Tyr Asp Asn Phe Leu Met 110 115 120

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Ala His Leu Ile Asn Glu Lys Asp Gly Glu Thr Phe Gln Leu Met $125$ $130$
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Gly Leu Tyr Gly Arg Glu Pro Asp Leu Ser Ser Asp Ile Lys Glu 140 145

Arg Phe Ala Gln Leu Cys Glu Glu His Gly Ile Leu Arg Glu Asn 155 160 165

Ile Ile Asp Leu Ser Asn Ala Asn Arg Cys Leu Gln Ala Arg Glu 170 175 180

<210> 257

<211> 766

<212> DNA

<213> Homo sapiens

<400> 257

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<210> 258

<211> 229

<212> PRT

<213> Homo sapiens

<400> 258

Met Thr Cys Cys Glu Gly Trp Thr Ser Cys Asn Gly Phe Ser Leu  $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$ 

Leu Val Leu Leu Leu Gly Val Val Leu Asn Ala Ile Pro Leu 20 25 30

Ile Val Ser Leu Val Glu Glu Asp Gln Phe Ser Gln Asn Pro Ile

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35 40 45

Ser Cys Phe Glu Trp Trp Phe Pro Gly Ile Ile Gly Ala Gly Leu
50 55 60

Met Ala Ile Pro Ala Thr Thr Met Ser Leu Thr Ala Arg Lys Arg
65 70 75

Ala Cys Cys Asn Asn Arg Thr Gly Met Phe Leu Ser Ser Phe Phe
80 85 90

Ser Val Ile Thr Val Ile Gly Ala Leu Tyr Cys Met Leu Ile Ser 95 100 105

Ile Gln Ala Leu Leu Lys Gly Pro Leu Met Cys Asn Ser Pro Ser 110 115 120

Asn Ser Asn Ala Asn Cys Glu Phe Ser Leu Lys Asn Ile Ser Asp 125 130 135

Ile His Pro Glu Ser Phe Asn Leu Gln Trp Phe Phe Asn Asp Ser 140 145

Cys Ala Pro Pro Thr Gly Phe Asn Lys Pro Thr Ser Asn Asp Thr
155 160 165

Met Ala Ser Gly Trp Arg Ala Ser Ser Phe His Phe Asp Ser Glu 170 175 180

Glu Asn Lys His Arg Leu Ile His Phe Ser Val Phe Leu Gly Leu 185 190 195

Leu Leu Val Gly Ile Leu Glu Val Leu Phe Gly Leu Ser Gln Ile 200 205 210

Val Ile Gly Phe Leu Gly Cys Leu Cys Gly Val Ser Lys Arg Arg 215 220 220

Ser Gln Ile Val

<210> 259

<211> 434

<212> DNA

<213> Homo sapiens

<400> 259

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tcaacacgtt gctttaataa atcacttgcc ctgc 434
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<210> 260

<211> 83

<212> PRT

<213> Homo sapiens

<400> 260

Met Arg Leu Ser Val Cys Leu Leu Met Val Ser Leu Ala Leu Cys 1 5 10 15

Cys Tyr Gln Ala His Ala Leu Val Cys Pro Ala Val Ala Ser Glu 20 25 30

Ile Thr Val Phe Leu Phe Leu Ser Asp Ala Ala Val Asn Leu Gln 35 40 45

Val Ala Lys Leu Asn Pro Pro Pro Glu Ala Leu Ala Ala Lys Leu
50 55 60

Glu Val Lys His Cys Thr Asp Gln Ile Ser Phe Lys Lys Arg Leu
65 70 75

Ser Leu Lys Lys Ser Trp Trp Lys 80

<210> 261

<211> 636

<212> DNA

<213> Homo sapiens

<400> 261

atcogttctc tgcgctgca getcaggtga gecctcgca aggtgacete 50 geaggacact ggtgaaggag cagtgaggaa cetgcagagt cacacagttg 100 ctgaccaatt gagctgtgag cetggagcag atccgtggge tgcagacece 150 cgccccagtg cetctcccc tgcagccetg cecctcgaac tgtgacatgg 200 agagagtgac cetggcctt etcetactgg caggcetgac tgccttggaa 250 gccaatgace catttgccaa taaagacgat ecettctact atgactggaa 300 aaacctgcag ctgagcggac tgatetgcg agggctcetg gecattgctg 350 ggatcgcgga agttetgagt ggcaaatgca aatacaagag cagccagaag 400 cagcacagtc etgtacetga gaaggccatc ecactcatca etccaggetc 450 tgccactact tgctgagcac aggactgce tccagggatg gcctgaagcc 500 taacactgca cccagcace tcctcccctg ggaggcctta tcctcaagga 550 aggacttctc tccaagggca ggctgttagg ccccttctg atcaggagc 600 ttetttatga attaaactcg ccccaccacc ccctca 636

<sup>&</sup>lt;210> 262

<sup>&</sup>lt;211> 89

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Homo sapiens

Lys Ala Ile Pro Leu Ile Thr Pro Gly Ser Ala Thr Thr Cys  $80 \hspace{1cm} 85$ 

<210> 263 <211> 1676 <212> DNA <213> Homo sapiens

<400> 263

ggagaagagg ttgtgtggga caagctgctc ccgacagaag gatgtcgctg 50 ctgagectge cetggetggg ceteagaceg gtggeaatgt ceceatgget 100 actcctqctq ctqqttqtqq qctcctqqct actcqcccqc atcctqqctt 150 ggacctatgc cttctataac aactgccgcc ggctccagtg tttcccacag 200 cccccaaaac ggaactggtt ttggggtcac ctgggcctga tcactcctac 250 agaggagggc ttgaaggact cgacccagat gtcggccacc tattcccagg 300 gctttacggt atggctgggt cccatcatcc ccttcatcgt tttatgccac 350 cctgacacca tccggtctat caccaatgcc tcagctgcca ttgcacccaa 400 ggataatctc ttcatcaggt tcctgaagcc ctggctggga gaagggatac 450 tgctgagtgg eggtgacaag tggagcegee accqteggat getgaegeee 500 gccttccatt tcaacatcct gaagtcctat ataacgatct tcaacaagag 550 tgcaaacatc atgcttgaca agtggcagca cctggcctca gagggcagca 600 gtcgtctgga catgtttgag cacatcagcc tcatgacctt ggacagtcta 650 cagaaatgca tcttcagctt tgacagccat tgtcaggaga gqcccagtqa 700 atatattgcc accatcttgg agctcagtgc ccttgtagag aaaaqaagcc 750 agcatatect ecageaeatg gaetttetgt attacetete ecatgaeggg 800 eggegettee acagggeetg eegeetggtg catgacttea cagacgetgt 850 catccgggag cggcgtcgca ccctccccac tcagggtatt gatgattttt 900 tcaaagacaa agccaagtcc aagactttqq atttcattqa tqtqcttctq 950

ctgagcaagg atgaagatgg gaaggcattg tcagatgagg atataagagc 1000 agaggctgac accttcatgt ttggaggcca tgacaccacg gccagtggcc 1050 tetectgggt cctgtacaac cttgcgaggc acccagaata ccaggagcgc 1100 tgccgacagg aggtgcaaga gcttctgaag gaccgcgatc ctaaagagat 1150 tgaatgggac gacctggccc agctgcctt cctgaccatg tgcgtgaagg 1200 agagcctgag gttacatccc ccagctcct tcatctcccg atgctgcacc 1250 caggacattg ttctcccaga tggccgagtc atccccaaag gcattacctg 1300 cctcatcgat attatagggg tccatcacaa cccaactgtg tggccggatc 1350 ctgaggtcta cgacccttc cgctttgacc cagagaacag caaggggagg 1400 tcacctctgg ctttattcc tttctccgca gggcccagga actgcatcgg 1450 gcaggcgttc gccatggcag agactacctg agaccactg agaccactg gaagctggaa 1550 ttgatcatgc gcgccgaggg cgggctttgg ctgcgggtgg agcccctgaa 1600 tgtaggcttg cagtgactt ctgaccatc cacctgttt tttgcagatt 1650 gtcatgaata aaacggtgct gtcaaa 1676

<210> 264 <211> 524

<212> PRT

<213> Homo sapiens

## <400> 264

Met Ser Leu Ser Leu Pro Trp Leu Gly Leu Arg Pro Val Ala 1 5 10 15

Met Ser Pro Trp Leu Leu Leu Leu Val Val Gly Ser Trp Leu 20 25 30

Leu Ala Arg Ile Leu Ala Trp Thr Tyr Ala Phe Tyr Asn Asn Cys 35 40 45

Arg Arg Leu Gln Cys Phe Pro Gln Pro Pro Lys Arg Asn Trp Phe 50 55 60

Trp Gly His Leu Gly Leu Ile Thr Pro Thr Glu Glu Gly Leu Lys
65 70 75

Asp Ser Thr Gln Met Ser Ala Thr Tyr Ser Gln Gly Phe Thr Val 80 85 90

Trp Leu Gly Pro Ile Ile Pro Phe Ile Val Leu Cys His Pro Asp 95 100 105

Thr Ile Arg Ser Ile Thr Asn Ala Ser Ala Ala Ile Ala Pro Lys 110 115 120

Asp Asn Leu Phe Ile Arg Phe Leu Lys Pro Trp Leu Gly Glu Gly 125 130 135

Ile Leu Leu Ser Gly Gly Asp Lys Trp Ser Arg His Arg Arg Met Leu Thr Pro Ala Phe His Phe Asn Ile Leu Lys Ser Tyr Ile Thr 155 160 Ile Phe Asn Lys Ser Ala Asn Ile Met Leu Asp Lys Trp Gln His 170 175 Leu Ala Ser Glu Gly Ser Ser Arg Leu Asp Met Phe Glu His Ile Ser Leu Met Thr Leu Asp Ser Leu Gln Lys Cys Ile Phe Ser Phe Asp Ser His Cys Gln Glu Arg Pro Ser Glu Tyr Ile Ala Thr Ile 215 220 Leu Glu Leu Ser Ala Leu Val Glu Lys Arg Ser Gln His Ile Leu 230 235 Gln His Met Asp Phe Leu Tyr Tyr Leu Ser His Asp Gly Arg Arg 250 Phe His Arg Ala Cys Arg Leu Val His Asp Phe Thr Asp Ala Val Ile Arg Glu Arg Arg Arg Thr Leu Pro Thr Gln Gly Ile Asp Asp Phe Phe Lys Asp Lys Ala Lys Ser Lys Thr Leu Asp Phe Ile Asp 295 Val Leu Leu Ser Lys Asp Glu Asp Gly Lys Ala Leu Ser Asp 305 310 Glu Asp Ile Arg Ala Glu Ala Asp Thr Phe Met Phe Gly Gly His 320 325 Asp Thr Thr Ala Ser Gly Leu Ser Trp Val Leu Tyr Asn Leu Ala Arg His Pro Glu Tyr Gln Glu Arg Cys Arg Gln Glu Val Gln Glu 350 355 Leu Leu Lys Asp Arg Asp Pro Lys Glu Ile Glu Trp Asp Asp Leu 365 370 Ala Gln Leu Pro Phe Leu Thr Met Cys Val Lys Glu Ser Leu Arg 380 Leu His Pro Pro Ala Pro Phe Ile Ser Arg Cys Cys Thr Gln Asp 395 Ile Val Leu Pro Asp Gly Arg Val Ile Pro Lys Gly Ile Thr Cys Leu Ile Asp Ile Ile Gly Val His His Asn Pro Thr Val Trp Pro 425 430 Asp Pro Glu Val Tyr Asp Pro Phe Arg Phe Asp Pro Glu Asn Ser 440 445

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Lys Gly Arg Ser Pro Leu Ala Phe Ile Pro Phe Ser Ala Gly Pro 455 460 465
```

Arg Asn Cys Ile Gly Gln Ala Phe Ala Met Ala Glu Met Lys Val 470 475 480

Val Leu Ala Leu Met Leu Leu His Phe Arg Phe Leu Pro Asp His
485 490

Thr Glu Pro Arg Arg Lys Leu Glu Leu Ile Met Arg Ala Glu Gly 500 505 510

Gly Leu Trp Leu Arg Val Glu Pro Leu As<br/>n Val Gly Leu Gl<br/>n  $515 \hspace{1.5cm} 520 \hspace{1.5cm}$ 

<210> 265

<211> 584

<212> DNA

<213> Homo sapiens

<400> 265

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<210> 266

<211> 124

<212> PRT

<213> Homo sapiens

<400> 266

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Asn Pro Leu Leu Ser Leu Pro Leu Leu Asp Ser Arg Glu Ile Ser 20 25 30

Phe Gln Leu Ser Ala Pro His Glu Asp Ala Arg Leu Thr Pro Glu 35 40 45

Glu Leu Glu Arg Ala Ser Leu Leu Gln Ile Leu Pro Glu Met Leu 50 55 60

Gly Ala Glu Arg Gly Asp Ile Leu Arg Lys Ala Asp Ser Ser Thr 65 70 75

Asn Ile Phe Asn Pro Arg Gly Asn Leu Arg Lys Phe Gln Asp Phe 80 85 90

Ser Gly Gln Asp Pro Asn Ile Leu Leu Ser His Leu Leu Ala Arg 95 100 105

Ile Trp Lys Pro Tyr Lys Lys Arg Glu Thr Pro Asp Cys Phe Trp 110 115 120

Lys Tyr Cys Val

<210> 267

<211> 654

<212> DNA

<213> Homo sapiens

<400> 267

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<210> 268

<211> 117

<212> PRT

<213> Homo sapiens

<400> 268

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Glu His Gln Arg Val Gln Gln Arg Lys Glu Ser Lys Lys Pro Pro 35 40 45 Ala Lys Leu Gln Pro Arg Ala Leu Ala Gly Trp Leu Arg Pro Glu
50 55 60

Asp Gly Gly Gln Ala Glu Gly Ala Glu Asp Glu Leu Glu Val Arg
65 70 75

Phe Asn Ala Pro Phe Asp Val Gly Ile Lys Leu Ser Gly Val Gln 80 85 90

Tyr Gln Gln His Ser Gln Ala Leu Gly Lys Phe Leu Gln Asp Ile 95 100 105

Leu Trp Glu Glu Ala Lys Glu Ala Pro Ala Asp Lys 110 115

<210> 269

<211> 1332

<212> DNA

<213> Homo sapiens

<400> 269

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<210> 270

<211> 142

<212> PRT

<213> Homo sapiens

<400> 270

Met Asn Thr Trp Leu Leu Phe Leu Pro Leu Phe Pro Val Gln Val 1 5 10 15

Gln Thr Leu Ile Val Val Ile Ile Gly Met Leu Val Leu Leu 20 25 30

Asp Phe Leu Gly Leu Val His Leu Gly Gln Leu Leu Ile Phe His  $35 \hspace{1cm} 40 \hspace{1cm} 45$ 

Ile Tyr Leu Ser Met Ser Pro Thr Leu Ser Pro Arg Ser Pro Gln 50 55 60

Gly Trp Val Val Arg Ala Ala His Leu Thr Pro Leu Leu Glu Tyr
65 70 75

Val Pro Asn Pro Glu Pro Pro Thr Pro Gly Ala Arg Val Phe Val 80 85 90

Pro Arg Val Arg Met Cys Ser Gly Ser Ala Ser Pro Arg Ser Glu 95 100 105

Ile Met Asp Lys Lys Gly Lys Ser Gln Glu Glu Ile Lys Ser Met
110 115 120

Arg Thr Gln Gln Ala Gln Gln Glu Ala Glu Leu Thr Pro Arg Pro  $125 \hspace{1.5cm} 130 \hspace{1.5cm} 135$ 

Ala Gly Val Val Pro Gly Ala

<210> 271

<211> 1484

<212> DNA

<213> Homo sapiens

<400> 271

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gtaaaataca cttcccgacc ttaaggatct gaaa 1484
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<210> 272

<211> 285

<212> PRT

<213> Homo sapiens

<400> 272

Met Ala Lys Met Glu Leu Ser Lys Ala Phe Ser Gly Gln Arg Thr 1 5 10

Leu Leu Ser Ala Ile Leu Ser Met Leu Ser Leu Ser Phe Ser Thr 20 25 30

Thr Ser Leu Leu Ser Asn Tyr Trp Phe Val Gly Thr Gln Lys Val

220

35 40 45

Pro Lys Pro Leu Cys Glu Lys Gly Leu Ala Ala Lys Cys Phe Asp Met Pro Val Ser Leu Asp Gly Asp Thr Asn Thr Ser Thr Gln Glu Val Val Gln Tyr Asn Trp Glu Thr Gly Asp Asp Arg Phe Ser Phe Arg Ser Phe Arg Ser Gly Met Trp Leu Ser Cys Glu Glu Thr Val 100 Glu Glu Pro Gly Glu Arg Cys Arg Ser Phe Ile Glu Leu Thr Pro 110 115 120 Pro Ala Lys Arg Gly Glu Lys Gly Leu Leu Glu Phe Ala Thr Leu Gln Gly Pro Cys His Pro Thr Leu Arg Phe Gly Gly Lys Arg Leu 140 145 150 Met Glu Lys Ala Ser Leu Pro Ser Pro Pro Leu Gly Leu Cys Gly Lys Asn Pro Met Val Ile Pro Gly Asn Ala Asp His Leu His Arg Thr Ser Ile His Gln Leu Pro Pro Ala Thr Asn Arg Leu Ala Thr 185 190 His Trp Glu Pro Cys Leu Trp Ala Gln Thr Glu Arg Leu Cys Cys Cys Phe Leu Cys Pro Val Arg Ser Pro Gly Asp Gly Pro His 215 220 225 Asp Val Phe Thr Ser Leu Pro Ser Asp Cys Gln Leu Gly Ser Arg Arg Leu Glu Thr Thr Cys Leu Glu Leu Trp Leu Gly Leu Leu His 250 Gly Leu Ala Leu Leu His Leu Leu His Gly Val Gly Cys His His Leu Gln His Val His Gln Asp Gly Ala Gly Val Gln Val Gln Ala

<210> 273

<211> 1158

<212> DNA

<213> Homo sapiens

<400> 273

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accaaccagg gtagtggcat ggagcaccgt aaccatctgt gcttctgtga 250 tototatgac agagecactt ctccacctct gaaatgttcc ctgctctgaa 300 atctggcatg agatggcaca ggtgaccacg cagaagccac cagaatcttg 350 cctgccctat tcctcctccc aagtetqttc tcttattqtc aacctcaqca 400 caacaggctg gcgccaatgg cattacagag aaagcaatct gtgtggctag 450 tgggcagatt accatgcaag ccccaggaga aatggaggag ctttgtagcc 500 acctccctgt cagccagtat taacatgtcc ccttccccct gccccgccgt 550 agattcagga cattcgcccc tgtgtgccac caaaccagga ctttcccctt 600 ggcttggcat ccctggctct ctcctggtac ccagcaagac gtctgttcca 650 gggcagtgta gcatctttca agctccgtta ctatggcgat ggccatgatg 700 ttacaatccc acttgcctga ataatcaagt gggaagggga agcagaggga 750 aatggggcca tgtgaatgca gctgctctgt tctccctacc ctgaggaaaa 800 accaaaggga agcaacagga acttctgcaa ctggttttta tcggaaagat 850 catcctgcct gcagatgctg ttgaaggggc acaagaaatg tagctggaga 900 agattgatga aagtgcaggt gtgtaaggaa atagaacagt ctgctgggag 950 tcagacctgg aattctgatt ccaaactctt tattactttg ggaagtcact 1000 cagectecce gtagecatet ecagggtgae ggaacceagt gtattacetg 1050. ctggaaccaa ggaaactaac aatgtaggtt actagtgaat accccaatgg 1100 tttctccaat tatgcccatg ccaccaaaac aataaaacaa aattctctaa 1150 cactgaaa 1158

<210> 274 <211> 86 <212> PRT <213> Homo sapiens

<400> 274

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Pro Ile Leu Ser Ser Pro Ser Leu Lys Ser Gln Ala Cys Gln Gln 20 25 30

Leu Leu Trp Thr Leu Pro Ser Pro Leu Val Ala Phe Arg Ala Asn
45

Arg Thr Thr Tyr Val Met Asp Val Ser Thr Asn Gln Gly Ser Gly 50 55

Met Glu His Arg Asn His Leu Cys Phe Cys Asp Leu Tyr Asp Arg
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Ala Thr Ser Pro Pro Leu Lys Cys Ser Leu Leu 80 85

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<210> 275
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<212> DNA
<213> Homo sapiens
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<210> 276

<211> 131

<212> PRT

<213> Homo sapiens

<400> 276

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Ile Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr 20 25 30

Asn Lys Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser

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35 40 45

Pro Ile Pro Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp 50 55 60

Ala Met Ser Asn Ala Cys Lys Glu Leu Ala Ile Phe Leu Thr Thr
65 70 75

Gly Ile Val Val Ser Ala Phe Gly Leu Pro Ile Val Phe Ala Arg  $80 \hspace{1cm} 85 \hspace{1cm} 90$ 

Ala His Leu Ile Glu Trp Gly Ala Cys Ala Leu Val Leu Thr Gly 95 100 105

Asn Thr Val Ile Phe Ala Thr Ile Leu Gly Phe Phe Leu Val Phe 110 115 120

Gly Ser Asn Asp Asp Phe Ser Trp Gln Gln Trp
125 130

<210> 277

<211> 4104

<212> DNA

<213> Homo sapiens

<400> 277

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Met Glu Pro His Val Phe Glu Thr Val Pro His Leu Gln Ser Leu

275

<213> Homo sapiens

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 Trp Asp Cys Gly Arg Asn Val Cys Ala Leu Ala Ser Trp Leu Ser
 Asn Phe Gln Gly Arg Tyr Asp Gly Asn Leu Gln Cys Ala Ser Pro
 Glu Tyr Ala Gln Gly Glu Asp Val Leu Asp Ala Val Tyr Ala Phe
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                                     355
 His Leu Cys Glu Asp Gly Ala Glu Pro Thr Ser Gly His Leu Leu
 Ser Ala Val Thr Asn Arg Ser Asp Leu Gly Pro Pro Ala Ser Ser
                 380
                                     385
 Ala Thr Thr Leu Ala Asp Gly Gly Glu Gly Gln His Asp Gly Thr
                 395
 Phe Glu Pro Ala Thr Val Ala Leu Pro Gly Gly Glu His Ala Glu
 Asn Ala Val Gln Ile His Lys Val Val Thr Gly Thr Met Ala Leu
                 425
                                     430
 Ile Phe Ser Phe Leu Ile Val Val Leu Val Leu Tyr Val Ser Trp
 Lys Cys Phe Pro Ala Ser Leu Arg Gln Leu Arg Gln Cys Phe Val
                 455
                                     460
 Thr Gln Arg Arg Lys Gln Lys Gln Thr Met His Gln Met
                                     475
 Ala Ala Met Ser Ala Gln Glu Tyr Tyr Val Asp Tyr Lys Pro Asn
 His Ile Glu Gly Ala Leu Val Ile Ile Asn Glu Tyr Gly Ser Cys
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 Thr Cys His Gln Gln Pro Ala Arg Glu Cys Glu Val
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Gly Ala Val Glu Phe Pro Ala Asp Lys Met Val Ser Val Leu Val 60

Gln Glu Gly His Ala Val Ser Asp Met Leu Leu Pro Leu Asp Gly

Glu Leu Val Leu Ala Ser Gly Ala Gly Phe Gly Val Ser Asp Val

Gly Ser His Leu Asp Cys Gly Ala Gly Glu Pro Ala Val Phe Arg

Asp Ser Asp Arg Phe Ser Trp His Asp Pro His Leu Trp Arg Ser 110 120

Gly Asp Glu Ala Pro Gly Leu Phe Phe Val Asp Ala Glu Arg Val 130

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Pro Cys Arg His Asp Asp Val Phe Phe Pro 145 Pro Ser Ala Ser Phe 150

Arg Val Gly Leu Gly Pro Gly Ala Ser Pro 160 Val Arg Val Arg Ser 165

Ile Ser Ala Leu Gly Arg Thr Phe Thr Arg Asp Glu Asp Leu Ala 180

Val Phe Leu Ala Ser Arg Ala Gly Arg Leu 190 Arg Phe His Gly Pro 195

Gly Ala Leu Ser Val Gly Pro Glu Asp Cys Ala Asp Pro Ser Gly 200

Cys Val Cys Gly Asp Asp Ala Glu Ala Gln Pro Trp Ile Cys Ala Ala 225
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Leu Leu Gln Pro

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Cys Ile Leu Gln Ser Leu Ala Leu Thr Trp Tyr Ser Leu Ser Phe 50 55 60

Ile Pro Phe Ala Arg Asp Ala Val Lys Lys Cys Phe Ala Val Cys 65 70 75

Leu Ala

<210> 284

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<212> DNA

<213> Homo sapiens

<400> 284

Mary Heart

Je House

india salah salah salah salah

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290 295 300 Val Pro Glu Arg Trp His Tyr Lys Tyr Asn Ser Arg Ile Gln Pro 305 310 Ile Ile Ala Val Ala Asp Glu Gly Trp His Ile Leu Gln Asn Lys 325 330 Ser Asp Asp Phe Leu Leu Gly Asn His Gly Tyr Asp Asn Ala Leu 335 340 Ala Asp Met His Pro Ile Phe Leu Ala His Gly Pro Ala Phe Arg 350 355 Lys Asn Phe Ser Lys Glu Ala Met Asn Ser Thr Asp Leu Tyr Pro 365 370 Leu Leu Cys His Leu Leu Asn Ile Thr Ala Met Pro His Asn Gly 380 385 Ser Phe Trp Asn Val Gln Asp Leu Leu Asn Ser Ala Met Pro Arg 395 400 405 Val Val Pro Tyr Thr Gln Ser Thr Ile Leu Leu Pro Gly Ser Val Lys Pro Ala Glu Tyr Asp Gln Glu Gly Ser Tyr Pro Tyr Phe Ile Gly Val Ser Leu Gly Ser Ile Ile Val Ile Val Phe Phe Val Ile 440 445 Phe Ile Lys His Leu Ile His Ser Gln Ile Pro Ala Leu Gln Asp 455 460 Met His Ala Glu Ile Ala Gln Pro Leu Leu Gln Ala 470

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<211> 1337

<212> DNA

<213> Homo sapiens

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<212> PRT

<213> Homo sapiens

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Val Gly Asp Asp Tyr His Ala Trp Asn Ile Asn Tyr Lys Lys Trp 35 40

Glu Asn Glu Glu Glu Glu Glu Glu Glu Gln Pro Pro Thr
50 55 60

Pro Val Ser Gly Glu Glu Gly Arg Ala Ala Pro Asp Val Ala 65 70 75

Pro Ala Pro Gly Pro Ala Pro Arg Ala Pro Leu Asp Phe Arg Gly 80 85 90

Met Leu Arg Lys Leu Phe Ser Ser His Arg Phe Gln Val Ile Ile 95 100

Ile Cys Leu Val Val Leu Asp Ala Leu Leu Val Leu Ala Glu Leu
110 115 120

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Ile Leu Asp Leu Lys Ile Ile Gln Pro Asp Lys Asn Asn Tyr Ala
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                                    130
Ala Met Val Phe His Tyr Met Ser Ile Thr Ile Leu Val Phe Phe
                140
                                    145
Met Met Glu Ile Ile Phe Lys Leu Phe Val Phe Arg Leu Ser Ser
Phe Thr Thr Ser Leu Arg Ser Trp Met Pro Val Val Val Val
                170
Ser Phe Ile Leu Asp Ile Val Leu Phe Gln Glu His Gln Phe
                185
                                    190
Glu Ala Leu Gly Leu Leu Ile Leu Leu Arg Leu Trp Arg Val Ala
                200
                                    205
Arg Ile Ile Asn Gly Ile Ile Ile Ser Val Lys Thr Arg Ser Glu
                215
                                    220
Arg Gln Leu Leu Arg Leu Lys Gln Met Asn Val Gln Leu Ala Ala
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<212> DNA

<213> Homo sapiens

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<210> 289 <211> 469
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<400> 289

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Lys Ser Ile Phe Lys Leu Ser Val Phe Ile Pro Ser Gln Glu Phe 35 40 45

Ser Thr Tyr Arg Gln Trp Lys Gln Lys Ile Val Gln Ala Gly Asp 50 55 60

Lys Asp Leu Asp Gly Gln Leu Asp Phe Glu Glu Phe Val His Tyr
65 70

Leu Gln Asp His Glu Lys Lys Leu Arg Leu Val Phe Lys Ile Leu  $80 \hspace{1cm} 85 \hspace{1cm} 90$ 

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Homo sapiens

Met Leu Cys Leu Cys Leu Tyr Val Pro Val Ile Gly Glu Ala Gln 1 5 10

Asp Lys Lys Asn Asp Gly Arg Ile Asp Ala Gln Glu Ile Met Gln Ser Leu Arg Asp Leu Gly Val Lys Ile Ser Glu Gln Gln Ala Glu 115 110 Lys Ile Leu Lys Ser Met Asp Lys Asn Gly Thr Met Thr Ile Asp Trp Asn Glu Trp Arg Asp Tyr His Leu Leu His Pro Val Glu Asn Ile Pro Glu Ile Ile Leu Tyr Trp Lys His Ser Thr Ile Phe Asp 160 Val Gly Glu Asn Leu Thr Val Pro Asp Glu Phe Thr Val Glu Glu 175 Arg Gln Thr Gly Met Trp Trp Arg His Leu Val Ala Gly Gly Gly Ala Gly Ala Val Ser Arg Thr Cys Thr Ala Pro Leu Asp Arg Leu Lys Val Leu Met Gln Val His Ala Ser Arg Ser Asn Asn Met Gly Ile Val Gly Gly Phe Thr Gln Met Ile Arg Glu Gly Gly Ala Arg 230 235 240 Ser Leu Trp Arg Gly Asn Gly Ile Asn Val Leu Lys Ile Ala Pro 245 250 Glu Ser Ala Ile Lys Phe Met Ala Tyr Glu Gln Ile Lys Arg Leu Val Gly Ser Asp Gln Glu Thr Leu Arg Ile His Glu Arg Leu Val Ala Gly Ser Leu Ala Gly Ala Ile Ala Gln Ser Ser Ile Tyr Pro Met Glu Val Leu Lys Thr Arg Met Ala Leu Arg Lys Thr Gly Gln 305 310 315 Tyr Ser Gly Met Leu Asp Cys Ala Arg Arg Ile Leu Ala Arg Glu 320 325 Gly Val Ala Ala Phe Tyr Lys Gly Tyr Val Pro Asn Met Leu Gly 340 345 Ile Ile Pro Tyr Ala Gly Ile Asp Leu Ala Val Tyr Glu Thr Leu 355 Lys Asn Ala Trp Leu Gln His Tyr Ala Val Asn Ser Ala Asp Pro Gly Val Phe Val Leu Leu Ala Cys Gly Thr Met Ser Ser Thr Cys 380 390 385 Gly Gln Leu Ala Ser Tyr Pro Leu Ala Leu Val Arg Thr Arg Met 395 400

Gln Ala Gln Ala Ser Ile Glu Gly Ala Pro Glu Val Thr Met Ser 420

Ser Leu Phe Lys His Ile Leu Arg Thr Glu Gly Ala Phe Gly Leu 435

Tyr Arg Gly Leu Ala Pro Asn Phe Met Lys Val Ile Pro Ala Val 450

Ser Ile Ser Tyr Val Val Tyr Glu Asn Leu Lys Ile Thr Leu Gly 465

Val Gln Ser Arg

<210> 290 <211> 1658 <212> DNA <213> Homo sapiens

<400> 290

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<400> 291

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Ile Ile Ile Leu Ala Gly Ala Ile Ala Leu Ile Ile Gly Phe Gly 20 25 30

Ile Ser Gly Arg His Ser Ile Thr Val Thr Thr Val Ala Ser Ala 35 40 45

Gly Asn Ile Gly Glu Asp Gly Ile Leu Ser Cys Thr Phe Glu Pro 50 55 60

Asp Ile Lys Leu Ser Asp Ile Val Ile Gln Trp Leu Lys Glu Gly 65 70 75

Val Leu Gly Leu Val His Glu Phe Lys Glu Gly Lys Asp Glu Leu 80 85 90

Ser Glu Gln Asp Glu Met Phe Arg Gly Arg Thr Ala Val Phe Ala  $95 \hspace{1.5cm} 100 \hspace{1.5cm} 105$ 

Asp Gln Val Ile Val Gly Asn Ala Ser Leu Arg Leu Lys Asn Val 110 115 120

Gln Leu Thr Asp Ala Gly Thr Tyr Lys Cys Tyr Ile Ile Thr Ser 125 130 135

Lys Gly Lys Gly Asn Ala Asn Leu Glu Tyr Lys Thr Gly Ala Phe 140 145

Ser Met Pro Glu Val Asn Val Asp Tyr Asn Ala Ser Ser Glu Thr

160 165 155 Leu Arg Cys Glu Ala Pro Arg Trp Phe Pro Gln Pro Thr Val Val Trp Ala Ser Gln Val Asp Gln Gly Ala Asn Phe Ser Glu Val Ser 185 190 195 Asn Thr Ser Phe Glu Leu Asn Ser Glu Asn Val Thr Met Lys Val 200 205 Val Ser Val Leu Tyr Asn Val Thr Ile Asn Asn Thr Tyr Ser Cys Met Ile Glu Asn Asp Ile Ala Lys Ala Thr Gly Asp Ile Lys Val 230 235 Thr Glu Ser Glu Ile Lys Arq Arq Ser His Leu Gln Leu Leu Asn 250 Ser Lys Ala Ser Leu Cys Val Ser Ser Phe Phe Ala Ile Ser Trp 260 265 270 Ala Leu Leu Pro Leu Ser Pro Tyr Leu Met Leu Lys

<210> 292 <211> 1484 <212> DNA <213> Homo sapiens

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<210> 293

<211> 180

<212> PRT

<213> Homo sapiens

<400> 293

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Ala Leu Trp Gly Gly Thr Gln Pro Leu Leu Lys Arg Ala Ser Ala 20 25 30

Gly Leu Gln Arg Val His Glu Pro Thr Trp Ala Gln Gln Leu Leu 35 40 45

Gln Glu Met Lys Thr Leu Phe Leu Asn Thr Glu Tyr Leu Met Pro 50 55 60

Phe Leu Leu Asn Gln Cys Gly Ser Leu Leu Tyr Tyr Leu Thr Leu 65 70 75

Ala Ser Thr Asp Leu Thr Leu Ala Val Pro Ile Cys Asn Ser Leu 80 85 90

Ala Ile Ile Phe Thr Leu Ile Val Gly Lys Ala Leu Gly Glu Asp 95 100 105

Ile Gly Gly Lys Arg Lys Leu Asp Tyr Cys Glu Cys Gly Thr Gln 110 115 120

Leu Cys Gly Ser Arg His Thr Cys Val Ser Ser Phe Pro Glu Pro 125 130

Ile Ser Pro Glu Trp Val Arg Thr Arg Pro Phe Pro Ile Leu Pro 140 145 150

Phe Pro Leu Gln Leu Phe Cys Phe Leu Val Ala Ile Arg Val Pro 155 160 165

Phe Pro Trp Thr Val Trp Arg Lys Thr Glu Ala Gly Val Trp Asp 170 175 180

<210> 294

<211> 1164

<212> DNA

<213> Homo sapiens

<400> 294

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<sup>&</sup>lt;210> 295

<sup>&</sup>lt;211> 237

<sup>&</sup>lt;212> PRT

<213> Homo sapiens

<400> 295 Met Lys Gly Ile Leu Val Ala Gly Ile Thr Ala Val Leu Val Ala 10 Ala Val Glu Ser Leu Ser Cys Val Gln Cys Asn Ser Trp Glu Lys Ser Cys Val Asn Ser Ile Ala Ser Glu Cys Pro Ser His Ala Asn Thr Ser Cys Ile Ser Ser Ser Ala Ser Ser Ser Leu Glu Thr Pro 50 55 Val Arg Leu Tyr Gln Asn Met Phe Cys Ser Ala Glu Asn Cys Ser Glu Glu Thr His Ile Thr Ala Phe Thr Val His Val Ser Ala Glu Glu His Phe His Phe Val Ser Gln Cys Cys Gln Gly Lys Glu Cys 95 Ser Asn Thr Ser Asp Ala Leu Asp Pro Pro Leu Lys Asn Val Ser Ser Asn Ala Glu Cys Pro Ala Cys Tyr Glu Ser Asn Gly Thr Ser Cys Arg Gly Lys Pro Trp Lys Cys Tyr Glu Glu Glu Gln Cys Val 145 Phe Leu Val Ala Glu Leu Lys Asn Asp Ile Glu Ser Lys Ser Leu 155 160 Val Leu Lys Gly Cys Ser Asn Val Ser Asn Ala Thr Cys Gln Phe 170 175 Leu Ser Gly Glu Asn Lys Thr Leu Gly Gly Val Ile Phe Arg Lys Phe Glu Cys Ala Asn Val Asn Ser Leu Thr Pro Thr Ser Ala Pro 200 205 Thr Thr Ser His Asn Val Gly Ser Lys Ala Ser Leu Tyr Leu Leu Ala Leu Ala Ser Leu Leu Leu Arg Gly Leu Leu Pro 230

<210> 296

<211> 1245

<212> DNA

<213> Homo sapiens

<400> 296

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<210> 297

<211> 341

<212> PRT

<213> Homo sapiens

<400> 297

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Thr Glu Met Gln Arg Val Ser Leu Arg Phe Gly Gly Pro Met Thr 35 40 45

Arg Ser Tyr Arg Ser Thr Ala Arg Thr Gly Leu Pro Arg Lys Thr
50 55 60

Arg Ile Ile Leu Glu Asp Glu Asn Asp Ala Met Ala Asp Ala Asp

žri,

65 70 75
Arg Leu Ala Gly Pro Ala Ala Ala Glu Leu Leu Ala Ala Thr Val

Ser Thr Gly Phe Ser Arg Ser Ser Ala Ile Asn Glu Glu Asp Gly 95 100 105

Ser Ser Glu Glu Gly Val Val Ile Asn Ala Gly Lys Asp Ser Thr 110 115 120

Ser Arg Glu Leu Pro Ser Ala Thr Pro Asn Thr Ala Gly Ser Ser 125 130 135

Ser Thr Arg Phe Ile Ala Asn Ser Gln Glu Pro Glu Ile Arg Leu 140 145 150

Thr Ser Ser Leu Pro Arg Ser Pro Gly Arg Ser Thr Glu Asp Leu 155 160 165

Pro Gly Ser Gln Ala Thr Leu Ser Gln Trp Ser Thr Pro Gly Ser 170 175 180

Thr Pro Ser Arg Trp Pro Ser Pro Ser Pro Thr Ala Met Pro Ser 185 190 195

Pro Glu Asp Leu Arg Leu Val Leu Met Pro Trp Gly Pro Trp His 200 205 210

Cys His Cys Lys Ser Gly Thr Met Ser Arg Ser Arg Ser Gly Lys 215 220 225

Leu His Gly Leu Ser Gly Arg Leu Arg Val Gly Ala Leu Ser Gln 230 . 235 240

Leu Arg Thr Glu His Lys Pro Cys Thr Tyr Gln Gln Cys Pro Cys 245 250 255

Asn Arg Leu Arg Glu Glu Cys Pro Leu Asp Thr Ser Leu Cys Thr 260 265 270

Asp Thr Asn Cys Ala Ser Gln Ser Thr Thr Ser Thr Arg Thr Thr 275 280 285

Thr Thr Pro Phe Pro Thr Ile His Leu Arg Ser Ser Pro Ser Leu 290 295 300

Pro Pro Ala Ser Pro Cys Pro Ala Leu Ala Phe Trp Lys Arg Val 305 310 315

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Thr Glu Met Gln Pro Ile Asp Arg Asn Gln Arg 335

<210> 298

<211> 2692

<212> DNA

<213> Homo sapiens

<400> 298

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<211> 320

<212> PRT

<213> Homo sapiens

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Asp Cys Val Leu Gln Cys Glu Glu Gln Asn Cys Ser Gly Gly Ala 35 40 45

Leu Asn His Phe Arg Ser Arg Gln Pro Ile Tyr Met Ser Leu Ala 50 55 60

Gly Trp Thr Cys Arg Asp Asp Cys Lys Tyr Glu Cys Met Trp Val 65 70

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Tyr His Thr Cys Val Ala Phe Ala Trp Val Ser Leu Asn Ala Trp
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Lys Met Asp Tyr Phe Cys Ala Ser Thr Val Ile Leu His Ser Ile
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Tyr Leu Cys Cys Val Arg Thr Val Gly Leu Gln His Pro Ala Val
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Val Ser Ala Phe Arg Ala Leu Leu Leu Met Leu Thr Val His
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Val Ser Tyr Leu Ser Leu Ile Arg Phe Asp Tyr Gly Tyr Asn Leu
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Val Ala Asn Val Ala Ile Gly Leu Val Asn Val Val Trp Trp Leu
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Cys Val Val Val Leu Leu Gln Gly Leu Ser Leu Leu Glu
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Leu Leu Asp Phe Pro Pro Leu Phe Trp Val Leu Asp Ala His Ala
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Ile Trp His Ile Ser Thr Ile Pro Val His Val Leu Phe Phe Ser
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<211> 1674

<212> DNA

<213> Homo sapiens

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Lys Lys Lys Val Leu Phe Ala Leu Cys Ser Leu Leu Arg His Phe

290 295 300 Pro Tyr Ala Gln Arg Gln Phe Leu Lys Leu Gly Gly Leu Gln Val 310 Leu Arg Thr Leu Val Gln Glu Lys Gly Thr Glu Val Leu Ala Val Arg Val Val Thr Leu Leu Tyr Asp Leu Val Thr Glu Lys Met Phe 340 Ala Glu Glu Ala Glu Leu Thr Gln Glu Met Ser Pro Glu Lys 350 355 Leu Gln Gln Tyr Arg Gln Val His Leu Leu Pro Gly Leu Trp Glu 370 Gln Gly Trp Cys Glu Ile Thr Ala His Leu Leu Ala Leu Pro Glu 385 His Asp Ala Arg Glu Lys Val Leu Gln Thr Leu Gly Val Leu Leu 395 400 405 Thr Thr Cys Arg Asp Arg Tyr Arg Gln Asp Pro Gln Leu Gly Arg 410 415 Thr Leu Ala Ser Leu Gln Ala Glu Tyr Gln Val Leu Ala Ser Leu 425 430 Glu Leu Gln Asp Gly Glu Asp Glu Gly Tyr Phe Gln Glu Leu Leu 440 445 450 Gly Ser Val Asn Ser Leu Leu Lys Glu Leu Arg 455 <210> 302

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 Ala Ala Val Ser Val Leu Leu Gln Glu Val Phe Arg Phe Ala Tyr
 Tyr Lys Leu Leu Lys Lys Ala Asp Glu Gly Leu Ala Ser Leu Ser
 Glu Asp Gly Arg Ser Pro Ile Ser Ile Arg Gln Met Ala Tyr Val
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 Asn Ile Leu Ala Asp Ala Leu Gly Pro Gly Val Val Gly Ile His
 Gly Asp Ser Pro Tyr Tyr Phe Leu Thr Ser Ala Phe Leu Thr Ala
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 Ala Cys Glu Arg Arg Arg Tyr Trp Ala Leu Gly Leu Val Val Gly
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                                     190
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Glu Ala Ser Leu Leu Pro Ile Tyr Ala Val Thr Val Ser Met Gly
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<212> PRT

<213> Homo sapiens

<400> 314

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Val Leu Cys Thr Val Leu Leu Ala Leu Ala Val Leu Leu Ala Val 35 40 45

Ala Val Thr Gly Ala Val Leu Phe Leu Asn His Ala His Ala Pro 50 55 60

Gly Thr Ala Pro Pro Pro Val Val Ser Thr Gly Ala Ala Ser Ala 65 70 75

Asn Ser Ala Leu Val Thr Val Glu Arg Ala Asp Ser Ser His Leu 80 85 90

Ser Ile Leu Ile Asp Pro Arg Cys Pro Asp Leu Thr Asp Ser Phe 95 100 105

Ala Arg Leu Glu Ser Ala Gln Ala Ser Val Leu Gln Ala Leu Thr Glu His Gln Ala Gln Pro Arg Leu Val Gly Asp Gln Glu Gln Glu 130 125 Leu Leu Asp Thr Leu Ala Asp Gln Leu Pro Arg Leu Leu Ala Arg 140 145 Ala Ser Glu Leu Gln Thr Glu Cys Met Gly Leu Arg Lys Gly His Gly Thr Leu Gly Gln Gly Leu Ser Ala Leu Gln Ser Glu Gln Gly Arg Leu Ile Gln Leu Leu Ser Glu Ser Gln Gly His Met Ala His 185 190 Leu Val Asn Ser Val Ser Asp Ile Leu Asp Ala Leu Gln Arg Asp 200 205 Arg Gly Leu Gly Arg Pro Arg Asn Lys Ala Asp Leu Gln Arg Ala Pro Ala Arg Gly Thr Arg Pro Arg Gly Cys Ala Thr Gly Ser Arg Pro Arg Asp Cys Leu Asp Val Leu Leu Ser Gly Gln Gln Asp Asp Gly Val Tyr Ser Val Phe Pro Thr His Tyr Pro Ala Gly Phe Gln Val Tyr Cys Asp Met Arg Thr Asp Gly Gly Gly Trp Thr Val Phe 280 275 Gln Arg Arg Glu Asp Gly Ser Val Asn Phe Phe Arg Gly Trp Asp 290 295 Ala Tyr Arg Asp Gly Phe Gly Arg Leu Thr Gly Glu His Trp Leu 305 Gly Leu Lys Arg Ile His Ala Leu Thr Thr Gln Ala Ala Tyr Glu 320 325 Leu His Val Asp Leu Glu Asp Phe Glu Asn Gly Thr Ala Tyr Ala Arg Tyr Gly Ser Phe Gly Val Gly Leu Phe Ser Val Asp Pro Glu 350 355 Glu Asp Gly Tyr Pro Leu Thr Val Ala Asp Tyr Ser Gly Thr Ala 365 370 Gly Asp Ser Leu Leu Lys His Ser Gly Met Arg Phe Thr Thr Lys 385 Asp Arg Asp Ser Asp His Ser Glu Asn Asn Cys Ala Ala Phe Tyr 395 400 405 Arg Gly Ala Trp Trp Tyr Arg Asn Cys His Thr Ser Asn Leu Asn 410

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  Glu Trp Ser Ser Trp Thr Gly Trp Gln Tyr Ser Leu Lys Phe Ser
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<sup>&</sup>lt;210> 319

<sup>&</sup>lt;211> 280

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Homo sapiens

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<211> 468

<212> DNA

<213> Homo sapiens

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<211> 775

<212> PRT

<213> Homo sapiens

<400> 326

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Val Thr Trp Val Glu Glu Pro Cys Gly Pro Gly Pro Pro Gln Pro 35 40 45

Gly Asp Ser Glu Leu Pro Pro Arg Gly Asn Thr Asn Ala Arg 50 55 60

Arg Pro Asn Ser Val Gln Pro Gly Ala Glu Arg Glu Lys Pro Gly
65 70 75

Ala Gly Glu Gly Ala Gly Glu Asn Trp Glu Pro Arg Val Leu Pro 80 85 90

Tyr His Pro Ala Gln Pro Gly Gln Ala Ala Lys Lys Ala Val Arg 95 100 105

Thr Arg Tyr Ile Ser Thr Glu Leu Gly Ile Arg Gln Arg Leu Leu 110 115 120

Val Ala Val Leu Thr Ser Gln Thr Thr Leu Pro Thr Leu Gly Val 125 130

Ala Val Asn Arg Thr Leu Gly His Arg Leu Glu Arg Val Val Phe \$140\$ \$150\$

Leu Thr Gly Ala Arg Gly Arg Arg Ala Pro Pro Gly Met Ala Val 155 160 165

Val Thr Leu Gly Glu Glu Arg Pro Ile Gly His Leu His Leu Ala 170 175 180

Leu Arg His Leu Leu Glu Gln His Gly Asp Asp Phe Asp Trp Phe 185 190

Phe Leu Val Pro Asp Thr Thr Tyr Thr Glu Ala His Gly Leu Ala 200 205 210

Arg Leu Thr Gly His Leu Ser Leu Ala Ser Ala Ala His Leu Tyr 215 220 225

Leu Gly Arg Pro Gln Asp Phe Ile Gly Gly Glu Pro Thr Pro Gly 230 235 240

Arg Tyr Cys His Gly Gly Phe Gly Val Leu Leu Ser Arg Met Leu 245 250 250

Leu Gln Gln Leu Arg Pro His Leu Glu Gly Cys Arg Asn Asp Ile 260 265 270

Val Ser Ala Arg Pro Asp Glu Trp Leu Gly Arg Cys Ile Leu Asp Ala Thr Gly Val Gly Cys Thr Gly Asp His Glu Gly Val His Tyr Ser His Leu Glu Leu Ser Pro Gly Glu Pro Val Gln Glu Gly Asp 305 310 Pro His Phe Arg Ser Ala Leu Thr Ala His Pro Val Arg Asp Pro 320 Val His Met Tyr Gln Leu His Lys Ala Phe Ala Arg Ala Glu Leu 340 Glu Arg Thr Tyr Gln Glu Ile Gln Glu Leu Gln Trp Glu Ile Gln Asn Thr Ser His Leu Ala Val Asp Gly Asp Arg Ala Ala Ala Trp 370 Pro Val Gly Ile Pro Ala Pro Ser Arg Pro Ala Ser Arg Phe Glu Val Leu Arg Trp Asp Tyr Phe Thr Glu Gln His Ala Phe Ser Cys 395 Ala Asp Gly Ser Pro Arg Cys Pro Leu Arg Gly Ala Asp Arg Ala 415 Asp Val Ala Asp Val Leu Gly Thr Ala Leu Glu Glu Leu Asn Arg 430 Arg Tyr His Pro Ala Leu Arg Leu Gln Lys Gln Gln Leu Val Asn 440 Gly Tyr Arg Arg Phe Asp Pro Ala Arg Gly Met Glu Tyr Thr Leu Asp Leu Gln Leu Glu Ala Leu Thr Pro Gln Gly Gly Arg Arg Pro Leu Thr Arg Arg Val Gln Leu Leu Arg Pro Leu Ser Arg Val Glu 485 490 Ile Leu Pro Val Pro Tyr Val Thr Glu Ala Ser Arg Leu Thr Val 505 Leu Leu Pro Leu Ala Ala Glu Arg Asp Leu Ala Pro Gly Phe 515 520 Leu Glu Ala Phe Ala Thr Ala Ala Leu Glu Pro Gly Asp Ala Ala 530 Ala Ala Leu Thr Leu Leu Leu Tyr Glu Pro Arg Gln Ala Gln 550 555 Arg Val Ala His Ala Asp Val Phe Ala Pro Val Lys Ala His Val Ala Glu Leu Glu Arg Arg Phe Pro Gly Ala Arg Val Pro Trp Leu 575 585

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  Leu Ser Lys Lys His Pro Leu Asp Thr Leu Phe Leu Leu Ala Gly
                  605
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  Pro Asp Thr Val Leu Thr Pro Asp Phe Leu Asn Arg Cys Arg Met
                  620
  His Ala Ile Ser Gly Trp Gln Ala Phe Phe Pro Met His Phe Gln
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 Ala Phe His Pro Gly Val Ala Pro Pro Gln Gly Pro Gly Pro Pro
                  650
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  Glu Leu Gly Arg Asp Thr Gly Arg Phe Asp Arg Gln Ala Ala Ser
 Glu Ala Cys Phe Tyr Asn Ser Asp Tyr Val Ala Ala Arg Gly Arg
                                      685
 Leu Ala Ala Ser Glu Gln Glu Glu Leu Leu Glu Ser Leu
 Asp Val Tyr Glu Leu Phe Leu His Phe Ser Ser Leu His Val Leu
                  710
 Arg Ala Val Glu Pro Ala Leu Leu Gln Arg Tyr Arg Ala Gln Thr
                  725
                                      730
 Cys Ser Ala Arg Leu Ser Glu Asp Leu Tyr His Arg Cys Leu Gln
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 gctttttaga agcttgattt cctttgaaga tgaaagacta gcggaagctc 200
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gccacgacaa ctggaggcaa agagggttgc tcaacgcccc gcctcattgg 400
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<211> 153

<212> PRT

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Ser Ser Phe Ser Arg Thr Val Val Ala Pro Ser Ala Val Ala Gly 35 40 45

Lys Arg Pro Pro Glu Pro Thr Thr Pro Trp Gln Glu Asp Pro Glu
50 55 60

Pro Glu Asp Glu Asn Leu Tyr Glu Lys Asn Pro Asp Ser His Gly 65 70 75

Tyr Asp Lys Asp Pro Val Leu Asp Val Trp Asn Met Arg Leu Val 80 85 90

Phe Phe Phe Gly Val Ser Ile Ile Leu Val Leu Gly Ser Thr Phe 95 100 105

Val Ala Tyr Leu Pro Asp Tyr Arg Met Lys Glu Trp Ser Arg Arg 110 115 120

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Trp Cys Leu Ala Glu Pro Pro Arg Asp Ser Leu Arg Glu Glu Leu 20 25 30

Val Ile Thr Pro Leu Pro Ser Gly Asp Val Ala Ala Thr Phe Gln 35 40 45

Phe Arg Thr Arg Trp Asp Ser Glu Leu Gln Arg Glu Gly Val Ser 50 55

His Tyr Arg Leu Phe Pro Lys Ala Leu Gly Gln Leu Ile Ser Lys 65 70 75

Tyr Ser Leu Arg Glu Leu His Leu Ser Phe Thr Gln Gly Phe Trp 80 85 90

Arg Thr Arg Tyr Trp Gly Pro Pro Phe Leu Gln Ala Pro Ser Gly 95 100

Ala Glu Leu Trp Val Trp Phe Gln Asp Thr Val Thr Asp Val Asp 110 115 120

Lys Ser Trp Lys Glu Leu Ser Asn Val Leu Ser Gly Ile Phe Cys 125 130 135

Ala Ser Leu Asn Phe Ile Asp Ser Thr Asn Thr Val Thr Pro Thr 140 145 150

Ala Ser Phe Lys Pro Leu Gly Leu Ala Asn Asp Thr Asp His Tyr 165 Phe Leu Arg Tyr Ala Val Leu Pro Arg Glu Val Val Cys Thr Glu 170 Asn Leu Thr Pro Trp Lys Lys Leu Leu Pro Cys Ser Ser Lys Ala 185 Gly Leu Ser Val Leu Leu Lys Ala Asp Arg Leu Phe His Thr Ser 200 Tyr His Ser Gln Ala Val His Ile Arg Pro Val Cys Arg Asn Ala Arg Cys Thr Ser Ile Ser Trp Glu Leu Arg Gln Thr Leu Ser Val Val Phe Asp Ala Phe Ile Thr Gly Gln Gly Lys Lys Asp Trp Ser 245 Leu Phe Arg Met Phe Ser Arg Thr Leu Thr Glu Pro Cys Pro Leu Ala Ser Glu Ser Arg Val Tyr Val Asp Ile Thr Thr Tyr Asn Gln Asp Asn Glu Thr Leu Glu Val His Pro Pro Pro Thr Thr Tyr 290 295 Gln Asp Val Ile Leu Gly Thr Arg Lys Thr Tyr Ala Ile Tyr Asp Leu Leu Asp Thr Ala Met Ile Asn Asn Ser Arg Asn Leu Asn Ile Gln Leu Lys Trp Lys Arg Pro Pro Glu Asn Glu Ala Pro Pro Val 335 Pro Phe Leu His Ala Gln Arg Tyr Val Ser Gly Tyr Gly Leu Gln 360 Lys Gly Glu Leu Ser Thr Leu Leu Tyr Asn Thr His Pro Tyr Arg 365 Ala Phe Pro Val Leu Leu Leu Asp Thr Val Pro Trp Tyr Leu Arg 385 Leu Tyr Val His Thr Leu Thr Ile Thr Ser Lys Gly Lys Glu Asn 395 Lys Pro Ser Tyr Ile His Tyr Gln Pro Ala Gln Asp Arg Leu Gln Pro His Leu Leu Glu Met Leu Ile Gln Leu Pro Ala Asn Ser Val 430 Thr Lys Val Ser Ile Gln Phe Glu Arg Ala Leu Leu Lys Trp Thr Glu Tyr Thr Pro Asp Pro Asn His Gly Phe Tyr Val Ser Pro Ser 455 460

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 Asp Trp Glu Glu Ser Pro Leu Phe Asn Ser Leu Phe Pro Val Ser
 Asp Gly Ser Asn Tyr Phe Val Arg Leu Tyr Thr Glu Pro Leu Leu
                  500
                                       505
 Val Asn Leu Pro Thr Pro Asp Phe Ser Met Pro Tyr Asn Val Ile
                  515
 Cys Leu Thr Cys Thr Val Val Ala Val Cys Tyr Gly Ser Phe Tyr
                  530
                                       535
                                                           540
 Asn Leu Leu Thr Arg Thr Phe His Ile Glu Glu Pro Arg Thr Gly
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                                                           555
 Gly Leu Ala Lys Arg Leu Ala Asn Leu Ile Arg Arg Ala Arg Gly
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<211> 111

<212> PRT

<213> Homo sapiens

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Pro Pro Gln Cys His Thr Asp Gln Asp Cys Leu Gly Glu Arg Lys
50 55 60

Cys Cys Tyr Leu His Cys Gly Phe Lys Cys Val Ile Pro Val Lys
65 70 75

Glu Leu Glu Glu Gly Gly Asn Lys Asp Glu Asp Val Ser Arg Pro
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Tyr Pro Glu Pro Gly Trp Glu Ala Lys Cys Pro Gly Ser Ser Ser 95 100

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<211> 600

<212> PRT

<213> Homo sapiens

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Leu Pro Ser Phe Ile Lys Glu Pro Gln Thr Lys Pro Ser Arg His  $35 \hspace{1cm} 40 \hspace{1cm} 45$ 

Gln Arg Thr Glu Asn Ile Lys Glu Arg Ser Leu Gln Ser Leu Ala 50  $\cdot$  60

Lys Pro Lys Ser Gln Ala Pro Thr Arg Ala Arg Arg Thr Thr Ile

					65					70					75
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,	Gln	Ala	Pro	Pro	Glu 110	Glu	Gln	Asp	Lys	Val 115	Pro	His	Thr	Ala	Gln 120
	Arg	Ala	Ala	Trp	Lys 125	Ser	Pro	Glu	Lys	Glu 130	Lys	Thr	Met	Val	Asn 135
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•	Thr	Glu	Ala	Gln	Ser 155	Trp	Lys	Ser	Gln	Asp 160	Thr	Lys	Thr	Thr	Gln 165
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	Ser	Glu	Lys	His	Gln 185	Gly	Lys	Ala	Ala	Thr 190	Thr	Ala	Lys	Thr	Leu 195
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	Ser	Thr	Arg	Thr	Arg 215	Gln	Lys	Gly	Val	Thr 220	Thr	Ala	Val	Ile	Pro 225
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	Glu	Ile	Gly	Gly	Leu 275	Gln	Thr	Thr	Cys	Pro 280	Asp	Ser	Val	ГÀЗ	Ile 285
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,	Asp	Arg	Leu	Glu	His 320	Phe	Ala	Pro	Pro	Phe 325	Gly	Phe	Met	Glu	Leu 330
,	Asn	Tyr	Ser	Leu	Val 335	Gln	Lys	Val	Val	Thr 340	Arg	Phe	Pro	Pro	Val 345
	Pro	Gln	Gln	Gln	Leu 350	Leu	Leu	Ala	Ser	Leu 355	Pro	Ala	Gly	Ser	Leu 360
;	Arg	Cys	Ile	Thr	Cys 365	Ala	Val	Val	Gly	Asn 370	Gly	Gly	Ile	Leu	Asn 375

Asn Ser His Met Gly Gln Glu Ile Asp Ser His Asp Tyr Val Phe

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ctttatacac atcccctcat ggacaagaga tttatttttg cagacagact 400 cttccataag tcctttgagt tttgtatgtt gttgacagtt tgcagatata 450 tattcgataa atcagtgtac ttgacagtgt tatctgtcac ttattt 496

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<211> 91

<212> PRT

<213> Homo sapiens

<400> 349

Met Arg Gly Pro Gly His Pro Leu Leu Gly Leu Leu Val 1 5 10 15

Leu Gly Pro Ser Pro Glu Gln Arg Val Glu Ile Val Pro Arg Asp 20 25 30

Leu Arg Met Lys Asp Lys Phe Leu Lys His Leu Thr Gly Pro Leu 35 40 45

Tyr Phe Ser Pro Lys Cys Ser Lys His Phe His Arg Leu Tyr His 50 55 60

Asn Thr Arg Asp Cys Thr Ile Pro Ala Tyr Tyr Lys Arg Cys Ala 65 70 75

Arg Leu Leu Thr Arg Leu Ala Val Ser Pro Val Cys Met Glu Asp 80 85 90

Lys

<210> 350

<211> 1141

<212> DNA

<213> Homo sapiens

<400> 350

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actotacca gotgggccc cagtotacaa coctgoaget cotcotcoct 650 atatgccacc acagccotct taccoggag cotgaggaac cagccatgtc 700 totgctgccc cttcagtgat gocaaccttg ggagatgccc toatcotgta 750 cotgcatctg gtcctggggg tggcaggagt cotcoagcca ccaggcccca 800 gaccaagcca agccetgggc cotactgggg acagagccc agggaagtgg 850 aacaggagct gaactagaac tatgagggt tggggggagg gottggaatt 900 atggctatt tttactgggg gcaagggagg gagatgacag cotgggtcac 950 agtgcctgtt ttcaaatagt coctotgct ccaagatccc agccaggaag 1000 gotggggcc tactgttgt coccotctggg ctggggtggg gggagggagg 1050 aggttccgtc agcagctgc agtagccct ctctctggct gccccactgg 1100 ccacatctct ggcctgctag attaaagctg taaagacaaa a 1141

<210> 351 <211> 197 <212> PRT <213> Homo S

<213> Homo sapiens

<400> 351

Met Pro Pro Ala Gly Leu Arg Arg Ala Ala Pro Leu Thr Ala Ile 1 5 10 15

Ala Leu Leu Val Leu Gly Ala Pro Leu Val Leu Ala Gly Glu Asp 20 25 30

Cys Leu Trp Tyr Leu Asp Arg Asn Gly Ser Trp His Pro Gly Phe 35 40 45

Asn Cys Glu Phe Phe Thr Phe Cys Cys Gly Thr Cys Tyr His Arg 50 55 60

Tyr Cys Cys Arg Asp Leu Thr Leu Leu Ile Thr Glu Arg Gln Gln
65 70 75

Lys His Cys Leu Ala Phe Ser Pro Lys Thr Ile Ala Gly Ile Ala 80 85 90

Ser Ala Val Ile Leu Phe Val Ala Val Val Ala Thr Thr Ile Cys 95 100 105

Cys Phe Leu Cys Ser Cys Cys Tyr Leu Tyr Arg Arg Arg Gln Gln 110 115 120

Leu Gln Ser Pro Phe Glu Gly Gln Glu Ile Pro Met Thr Gly Ile 125 130 135

Pro Val Gln Pro Val Tyr Pro Tyr Pro Gln Asp Pro Lys Ala Gly 140 145 150

Pro Ala Pro Pro Gln Pro Gly Phe Met Tyr Pro Pro Ser Gly Pro 155 160 165

Ala Pro Gln Tyr Pro Leu Tyr Pro Ala Gly Pro Pro Val Tyr Asn 170 175 180

## Pro Ala Ala Pro Pro Pro Tyr Met Pro Pro Gln Pro Ser Tyr Pro 185 190 195

Gly Ala

<210> 352 <211> 3226

<212> DNA

<213> Homo sapiens

<400> 352

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<210> 353

<211> 941

<212> PRT

<213> Homo sapiens

<400> 353

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Trp Cys Gln Ser Thr Glu Ala Ser Pro Lys Arg Ser Asp Gly Thr 35 40 45

Pro Phe Pro Trp Asn Lys Ile Arg Leu Pro Glu Tyr Val Ile Pro 50 55 60

Val His Tyr Asp Leu Leu Ile His Ala Asn Leu Thr Thr Leu Thr 65 70 75

Phe Trp Gly Thr Thr Lys Val Glu Ile Thr Ala Ser Gln Pro Thr 80 85 90

Ser Thr Ile Ile Leu His Ser His His Leu Gln Ile Ser Arg Ala 95 100 105

Thr Leu Arg Lys Gly Ala Gly Glu Arg Leu Ser Glu Glu Pro Leu 110 115 120

Gln Val Leu Glu His Pro Pro Gln Glu Gln Ile Ala Leu Leu Ala 125 130 135

Pro Glu Pro Leu Val Gly Leu Pro Tyr Thr Val Val Ile His
140 145 150

Tyr Ala Gly Asn Leu Ser Glu Thr Phe His Gly Phe Tyr Lys Ser 155 160 165

Thr Tyr Arg Thr Lys Glu Gly Glu Leu Arg Ile Leu Ala Ser Thr

Gln Phe Glu Pro Thr Ala Ala Arg Met Ala Phe Pro Cys Phe Asp 185 190 195

Glu Pro Ala Phe Lys Ala Ser Phe Ser Ile Lys Ile Arg Arg Glu 200 205 210

Pro Arg His Leu Ala Ile Ser Asn Met Pro Leu Val Lys Ser Val

				21	5				22	0				225
Th	r Va	l Al	a Gl	u Gly 230	y Lei	u Ile	e Glu	ı Asp	Hi:		e As	p Va	l Th	r Val 240
Lys	s Met	t Se	r Th	r Ty: 245	r Let	ı Val	L Ala	a Phe	250 250		e Se	r As	p Ph	e Glu 255
Sei	· Val	l Se	r Ly	s Ile 260	e Thi	r Lys	S Ser	Gly	7 Va 265		s Vai	l Se	r Va	1 Tyr 270
Ala	ı Val	l Pro	o Ası	275 275	s Ile	e Asn	Gln	n Ala	Asp 280		r Ala	a Lei	u Ası	o Ala 285
Ala	va]	L Th:	r Lei	1 Leu 290	ı Glu	ı Phe	Tyr	Glu	Asp 295	э Туз	r Phe	e Sei	r Ile	Pro 300
Tyr	Pro	) Let	ı Pro	305	Gln	Asp	Leu	Ala	Ala 310		e Pro	o Asp	⊃ Ph∈	e Gln 315
Ser	: Gly	/ Ala	a Met	Glu 320	Asn	Trp	Gly	Leu	Thr 325	Thi	туг	arç	g Glu	ser 330
Ala	Leu	ı Leı	ı Phe	335	Ala	Glu	Lys	Ser	Ser 340	Ala	Ser	Ser	Lys	345
Gly	Ile	Thr	r Val	Thr 350	Val	Ala	His	Glu	Leu 355	Ala	His	Glr	Trp	9 Phe 360
Gly	Asn	Lev	ı Val	. Thr 365	Met	Glu	Trp	Trp	Asn 370	Asp	Leu	Trp	) Leu	375
Glu	Gly	Phe	Ala	1 Lys 380	Phe	Met	Glu	Phe	Val 385	Ser	. Val	. Ser	· Val	Thr 390
				395					400					Phe 405
				Val 410					415					420
				Asn 425					430					435
				440					445					Glu 450
				Asp 455					460					465
				Tyr 470					475					480
				Ile 485					490					495
				Arg 500					505					510
				Val 515					520					525
Leu	Gln	Arg	Gly	Phe	Pro	Leu	Tle	Thr	Tle	Thr	Val	Δrα	C137	7\ r.c.

				530	0				535	5				540
Ası	n Val	l Hi	s Me	t Ly: 54:	s Gli 5	n Glu	ı His	з Ту:	r Met 550	Lys	s Gl	y Se:	r Ası	o Gly 555
Ala	a Pro	o Ası	o Thi	r Gly 560	у Туз Э	r Leu	ı Trp	o His	5 Val		Le	ı Th:	r Phe	e Ile 570
Thi	Sei	c Lys	s Sei	r Asr 575	n Met	. Val	L His	s Arg	9 Ph∈ 580		ı Leı	а Ьуз	3 Tha	Lys 585
Thr	Asp	Val	l Leı	ı Il∈ 590	e Leu )	ı Pro	Glu	ı Glı	val 595		Trp	o Ile	e Lys	Phe 600
Asn	ı Val	. Gly	y Met	605	ı Gly	y Tyr	Туг	: Ile	Val 610		гуг	Glu	a Asp	Asp 615
Gly	7 Trp	Asp	Ser	620	Thr	Gly	Leu	ı Lev	Lys 625	Gly	Thr	His	Thi	Ala 630
Val	. Ser	Ser	Asn	Asp 635	Arg	, Ala	Ser	Leu	11e 640		Asn	Ala	Phe	Gln 645
Leu	Val	Ser	: Ile	Gly 650	Lys	Leu	. Ser	Ile	Glu 655	Lys	Ala	Lev	Asp	Leu 660
Ser	Leu	Tyr	: Leu	Lys 665	His	Glu	Thr	Glu	Ile 670	Met	Pro	Val	Phe	Gln 675
Gly	Leu	Asn	Glu	Leu 680	Ile	Pro	Met	Tyr	Lys 685	Leu	Met	Glu	Lys	Arg 690
Asp	Met	Asn	Glu	Val 695	Glu	Thr	Gln	Phe	Lys 700	Ala	Phe	Leu	Ile	Arg 705
Leu	Leu	Arg	Asp	Leu 710	Ile	Asp	Lys	Gln	Thr 715	Trp	Thr	Asp	Glu	Gly 720
Ser	Val	Ser	Glu	Gln 725	Met	Leu	Arg	Ser	Glu 730	Leu	Leu	Leu	Leu	Ala 735
Cys	Val	His	Asn	Tyr 740	Gln	Pro	Cys	Val	Gln 745	Arg	Ala	Glu	Gly	Tyr 750
Phe	Arg	Lys	Trp	Lys 755	Glu	Ser	Asn	Gly	Asn 760	Leu	Ser	Leu	Pro	Val 765
Asp	Val	Thr	Leu	Ala 770	Val	Phe	Ala	Val	Gly 775	Ala	Gln	Ser	Thr	Glu 780
Gly	Trp	Asp	Phe	Leu 785	Tyr	Ser	Lys	Tyr	Gln 790	Phe	Ser	Leu	Ser	Ser 795
Thr	Glu	Lys	Ser	Gln 800	Ile	Glu	Phe	Ala	Leu 805	Cys	Arg	Thr	Gln	Asn 810
Lys	Glu	Lys	Leu	Gln 815	Trp	Leu	Leu	Asp	Glu 820	Ser	Phe	Lys	Gly	Asp 825
Lys	Ile	Lys	Thr	Gln 830	Glu	Phe	Pro	Gln	Ile 835	Leu	Thr	Leu	Ile	Gly 840
Arg	Asn	Pro	Val	Gly	Tyr	Pro	Leu	Ala	Trp	Gln	Phe	Leu	Arg	Lys

				845					850					855
Asn	Trp	Asn	Lys	Leu 860	Val	Gln	Lys	Phe	Glu 865	Leu	Gly	Ser	Ser	Ser 870
Ile	Ala	His	Met	Val 875	Met	Gly	Thr	Thr	Asn 880	Gln	Phe	Ser	Thr	Arg 885
Thr	Arg	Leu	Glu	Glu 890	Val	Lys	Gly	Phe	Phe 895	Ser	Ser	Leu	Lys	Glu 900
Asn	Gly	Ser	Gln	Leu 905	Arg	Cys	Val	Gln	Gln 910	Thr	Ile	Glu	Thr	Ile 915
Glu	Glu	Asn	Ile	Gly 920	Trp	Met	Asp	Lys	Asn 925	Phe	Asp	Lys	Ile	Arg 930
Val	Trp	Leu	Gln	Ser 935	Glu	Lys	Leu	Glu	Arg 940	Met				

<210> 354 <211> 1587 <212> DNA <213> Homo sapiens

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tecetectea agetgeecet gteceaggag aceggeagtg tectacetgt 1000 gtgeagecee ttggaacetg tteaagtgge tececegaa tgacetgeee 1050 caggggegee acteattgtt atgatgggta catteatete teaggaggtg 1100 ggetgteeae caaaatgage atteaggget gegtggeeca acetteeage 1150 ttettgttga aceacaceag acaaateggg atetteeteg egegtgagaa 1200 gegtgatgtg cageeteetg eeteteagea tgagggaggt ggggetgagg 1250 geetggagte teteacttgg ggggtggge tggeactgge eecagegetg 1300 tggtggggag tggtttgeee tteetgetaa etetatace eecaegatte 1350 tteaecgetg etgaecaece acaeteaace teeetetgae eteataacet 1400 aatggeettg gacaceagat tettteeeat tetgteeatg aateatete 1450 eecaecaeca ateateata tetaeteaec taacageaac actggggaga 1500 geetggagea teeggaettg eectatggga gaggggaeege tggaggagtg 1550 geetgeatgta tetgataata eagaeeetg eetttea 1587

<210> 355 <211> 437 <212> PRT

<213> Homo sapiens

<400> 355

Met Ser Ala Val Leu Leu Leu Ala Leu Leu Gly Phe Ile Leu Pro 1 5 10

Leu Pro Gly Val Gln Ala Leu Leu Cys Gln Phe Gly Thr Val Gln 20 25 30

His Val Trp Lys Val Ser Asp Leu Pro Arg Gln Trp Thr Pro Lys  $35 \hspace{1cm} 40 \hspace{1cm} 45$ 

Asn Thr Ser Cys Asp Ser Gly Leu Gly Cys Gln Asp Thr Leu Met 50 55 60

Leu Ile Glu Ser Gly Pro Gln Val Ser Leu Val Leu Ser Lys Gly 65 70 75

Cys Thr Glu Ala Lys Asp Gln Glu Pro Arg Val Thr Glu His Arg 80 85 90

Met Gly Pro Gly Leu Ser Leu Ile Ser Tyr Thr Phe Val Cys Arg 95 100

Gln Glu Asp Phe Cys Asn Asn Leu Val Asn Ser Leu Pro Leu Trp 110 115 120

Ala Pro Gln Pro Pro Ala Asp Pro Gly Ser Leu Arg Cys Pro Val 125 130

Cys Leu Ser Met Glu Gly Cys Leu Glu Gly Thr Thr Glu Glu Ile 140  $$145\$ 

Cys Pro Lys Gly Thr Thr His Cys Tyr Asp Gly Leu Leu Arg Leu

				-00					T 02					
Ara	Glv	Glv	Glv	Tle	Phe	Ser	Zan	T.A.11	Λrα	77 - 1	Cln	C1	Crra	Mot

155

11E G	OTA	Gry	σту	170	rne	ser	ASI	ьеu	Arg 175	Val	GIn	GLy	Cys	Met 180

Ser Ala Arg Glu Lys Arg Asp Val Gln Pro Pro Ala Ser Gln His 
$$395$$
 400 405

Ser Cys

<sup>&</sup>lt;210> 356

<sup>&</sup>lt;211> 1238

<sup>&</sup>lt;212> DNA

<sup>&</sup>lt;213> Homo sapiens

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teageetgge etteetgtea etgetgeeat etggacatee teageegget 150
ggcgatgacg cctgctctgt gcagatcctc gtccctggcc tcaaagggga 200
tgcgggagag aagggagaca aaggcgcccc cggacggcct ggaagagtcg 250
gccccacggg agaaaaagga gacatggggg acaaaggaca gaaaggcagt 300
gtgggtcgtc atggaaaaat tggtcccatt ggctctaaag gtgagaaagg 350
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catgtgagtg cagccagctg cgcaaggcca tcggggagat ggacaaccag 450
gtctctcagc tgaccagcga gctcaagttc atcaagaatg ctgtcgccgg 500
tgtgcgcgag acggagagca agatctacct gctggtgaag gaggagaagc 550
gctacgcgga cgcccagctg tcctgccagg gccgcggggg cacqctgagc 600
atgcccaagg acgaggctgc caatggcctg atggccgcat acctggcgca 650
agccqqcctq qcccqtqtct tcatcqqcat caacqacctq qaqaaqqaqq 700
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tcatgtgtga gtttgacaag gagaacatgt gagcctcagg ctggggctgc 900
ccattggggg ccccacatgt ccctgcaggg ttggcaggga cagagcccag 950
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tagtgcagta gttaagtcca aaaaaaaaa aaaaaaaa 1238
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<sup>&</sup>lt;210> 357

<sup>&</sup>lt;211> 271

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Homo sapiens

<sup>&</sup>lt;400> 357

Met Arg Gly Asn Leu Ala Leu Val Gly Val Leu Ile Ser Leu Ala 1 5 10

Phe Leu Ser Leu Leu Pro Ser Gly His Pro Gln Pro Ala Gly Asp 20 25 30

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Asp Ala Cys Ser Val Gln Ile Leu Val Pro Gly Leu Lys Gly Asp
Ala Gly Glu Lys Gly Asp Lys Gly Ala Pro Gly Arg Pro Gly Arg
Val Gly Pro Thr Gly Glu Lys Gly Asp Met Gly Asp Lys Gly Gln
Lys Gly Ser Val Gly Arg His Gly Lys Ile Gly Pro Ile Gly Ser
Lys Gly Glu Lys Gly Asp Ser Gly Asp Ile Gly Pro Pro Gly Pro
Asn Gly Glu Pro Gly Leu Pro Cys Glu Cys Ser Gln Leu Arg Lys
                 110
Ala Ile Gly Glu Met Asp Asn Gln Val Ser Gln Leu Thr Ser Glu
                                     130
                                                         135
Leu Lys Phe Ile Lys Asn Ala Val Ala Gly Val Arg Glu Thr Glu
                                     145
Ser Lys Ile Tyr Leu Leu Val Lys Glu Glu Lys Arg Tyr Ala Asp
Ala Gln Leu Ser Cys Gln Gly Arg Gly Gly Thr Leu Ser Met Pro
                                     175
Lys Asp Glu Ala Ala Asn Gly Leu Met Ala Ala Tyr Leu Ala Gln
                185
                                     190
Ala Gly Leu Ala Arg Val Phe Ile Gly Ile Asn Asp Leu Glu Lys
                200
                                     205
                                                         210
Glu Gly Ala Phe Val Tyr Ser Asp His Ser Pro Met Arg Thr Phe
                                    220
Asn Lys Trp Arg Ser Gly Glu Pro Asn Asn Ala Tyr Asp Glu Glu
Asp Cys Val Glu Met Val Ala Ser Gly Gly Trp Asn Asp Val Ala
                245
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Cys His Thr Thr Met Tyr Phe Met Cys Glu Phe Asp Lys Glu Asn
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Met

<210> 358

<211> 972

<212> DNA

<213> Homo sapiens

260

<400> 358

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265

270

aggcaccatg aggatcatgc tgctattcac agccatcctg gccttcagcc 200 tagctcagag ctttggggct gtctgtaagg agccacagga ggaggtggtt 250 cctggcgggg gccgcagcaa gagggatcca gatctctacc agctgctcca 300 gagactette aaaageeact catetetgga gggattgete aaageeetga 350 gccaggctag cacagatect aaggaateaa cateteega gaaacgtgae 400 atgcatgact tctttgtggg acttatgggc aagaggagcg tccagccaga 450 gggaaagaca ggacctttct taccttcagt gagggttcct cggccccttc 500 atcccaatca gcttggatcc acaggaaagt cttccctggg aacagaggag 550 cagagacett tataagaete teetaeggat gtgaateaag agaaegteee 600 cagetttgge atecteaagt ateceegag ageagaatag gtacteeact 650 teeggaetee tggaetgeat taggaagaee tettteeetg teecaateee 700 caggtgcgca cgctcctgtt accetttctc ttccctgttc ttgtaacatt 750 cttgtgcttt gactccttct ccatcttttc tacctgaccc tggtgtggaa 800 actgcatagt gaatateeec aaceecaatg ggcattgact gtagaatace 850 ctagagttcc tgtagtgtcc tacattaaaa atataatgtc tctctctatt 900 aaaaaaaaa aa 972

<210> 359

<211> 135

<212> PRT

<213> Homo sapiens

<400> 359

Met Arg Ile Met Leu Leu Phe Thr Ala Ile Leu Ala Phe Ser Leu 1 5 10 15

Ala Gln Ser Phe Gly Ala Val Cys Lys Glu Pro Gln Glu Glu Val 20 25 30

Val Pro Gly Gly Arg Ser Lys Arg Asp Pro Asp Leu Tyr Gln
35 40 45

Leu Leu Gln Arg Leu Phe Lys Ser His Ser Ser Leu Glu Gly Leu
50 55 60

Leu Lys Ala Leu Ser Gln Ala Ser Thr Asp Pro Lys Glu Ser Thr 65 70 75

Ser Pro Glu Lys Arg Asp Met His Asp Phe Phe Val Gly Leu Met 80 85 90

Gly Lys Arg Ser Val Gln Pro Glu Gly Lys Thr Gly Pro Phe Leu 95 100 105

Pro Ser Val Arg Val Pro Arg Pro Leu His Pro Asn Gln Leu Gly 110 115

## Ser Thr Gly Lys Ser Ser Leu Gly Thr Glu Glu Gln Arg Pro Leu 125 130 135

<210> 360

<211> 1738

<212> DNA

<213> Homo sapiens

<400> 360

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cccaagctcc agtgtggaaa cttccttcct ggctggttt ccagaactac 1400
agaggaatgg accacagtct tccagggtcc ctcctcgtcc accaaccggg 1450
agcctccacc ttggccatcc gtcagctatg aatggctttt taaacaaacc 1500
cacgtcccag cctgggtaac atggtaaagc cccgtctcta caaaaaaatc 1550
caagttagcc gggcatggtg gtgcgcacct gtagtcccag ctgcagtggg 1600
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ttgagcctgg gtgacagag ctgcagtgg ctgaaaaa 1738

<210> 361

<211> 159

<212> PRT

<213> Homo sapiens

<400> 361

Met Ser Cys Val Leu Gly Gly Val Ile Pro Leu Gly Leu Leu Phe
1 5 10 15

Leu Val Cys Gly Ser Gln Gly Tyr Leu Leu Pro Asn Val Thr Leu 20 25 30

Leu Glu Glu Leu Leu Ser Lys Tyr Gln His Asn Glu Ser His Ser 35 40 45

Arg Val Arg Arg Ala Ile Pro Arg Glu Asp Lys Glu Glu Ile Leu
50 55 60

Met Leu His Asn Lys Leu Arg Gly Gln Val Gln Pro Gln Ala Ser
65 70 75

Asn Met Glu Tyr Met Val Ser Ala Gly Ser Gly Arg Arg Gly Trp 80 85 90

His Arg Gly Trp Gly Leu Gly His Gln Pro Ala Leu Phe Pro Ser 95 100 105

Gln Leu Cys Ser Pro Ala Ser Ala Cys Asp Gly Trp Leu Arg Val

Ser Ser Gly Arg Gly Gly Ser Arg Leu Cys Ser Val Leu Phe Val 125 130 135

Cys Phe Glu Thr Gly Ser His Ser Ala Thr Asp Ala Gly Val Gln
140 145 150

Trp His Asn Arg His Ala Leu Lys Pro 155

<210> 362

<211> 422

<212> DNA

<213> Homo sapiens

<400> 362

aaggagagge caccgggact tcagtgtctc ctccatccca ggagcgcagt 50

ggecactatg gggtetggge tgececttgt ectectettg accetecttg 100 geageteaca tggaacaggg eegggtatga etttgeaact gaagetgaag 150 gagtettte tgacaaatte etectatgag teeagettee tggaattget 200 tgaaaagete tgeeteete teeateteee tteagggaee agegteaeee 250 teeaceatge aagateteaa eaceatgttg tetgeaacae atgacageea 300 ttgaageetg tgteettett ggeeeggget tttgggeegg ggatgeagga 350 ggeaggeeee gaceetgtet tteageagge eeecaceete etgagtgea 400 ataaataaaa tteggtatge tg 422

<210> 363 <211> 78

<212> PRT

<213> Homo sapiens

<400> 363

Met Gly Ser Gly Leu Pro Leu Val Leu Leu Thr Leu Leu Gly 1 5 10 15

Ser Ser His Gly Thr Gly Pro Gly Met Thr Leu Gln Leu Lys Leu 20 25 30

Lys Glu Ser Phe Leu Thr Asn Ser Ser Tyr Glu Ser Ser Phe Leu 35 40 45

Glu Leu Leu Glu Lys Leu Cys Leu Leu Leu His Leu Pro Ser Gly 50 55 60

Thr Ser Val Thr Leu His His Ala Arg Ser Gln His His Val Val
65 70 75

Cys Asn Thr

<210> 364

<211> 826 <212> DNA

<213> Homo sapiens

<400> 364

caagtgagtg ttacctttc acttagtagg atgtgttgtt acgctagtaa 500 aatagaaacc tgtgtttatt ctcaggtatt ttagaaacaa cagccatcat 550 tttattttat gtgtgtgttc ttggctgtat tcataaatta tatattttgg 600 gctatcaaat attacttcat tcaatataaa taacaatagt agaagttgtt 650 tacttagata tgctttctag ttgcatttc tcagcctatg taagactact 700 ttgttgtaat agcctttgaa atttacagta ctgtctctct actatcttca 750 gattacttga ttcaaataaa ccaattatgt ttgtaattga tattaataaa 800 accagaataa aagttcatat ctaccc 826

<210> 365 <211> 67

<212> PRT

<213> Homo sapiens

<400> 365

Met Ile Gly Tyr Tyr Leu Ile Leu Phe Leu Met Trp Gly Ser Ser 1 5 10 15

Thr Val Phe Cys Val Leu Leu Ile Phe Thr Ile Ala Glu Ala Ser 20 25 30

Phe Ser Val Glu Asn Glu Cys Leu Val Asp Leu Cys Leu Leu Arg 35 40 45

Ile Cys Tyr Lys Leu Ser Gly Val Pro Asn Gln Cys Arg Val Pro
50 55 60

Leu Pro Ser Asp Cys Ser Lys

<210> 366

<211> 2475

<212> DNA

<213> Homo sapiens

<400> 366

tgagacatcc ttgagaagag ccacagcata agagactgcc ctgcttggtg 100 ttttgcagga tgatggtgc ccttcgagga gcttctgcat tgctggttct 150 gttccttgca gctttctgc ccccgccgca gtgtacccag gacccagcca 200 tggtgcatta catctaccag cgctttcgag tcttggagca agggctggaa 250 aaatgtaccc aagcaacgag ggcatacatt caagaattcc aagagttctc 300 acaagagtgc agtgcatca tgggaagatg tcagacctac acaagtgagt 350 acaagagtgc agtgggtaac ttggcactga gagttgaacg tgcccaacgg 400 gagattgact acatcaata ccttcgagag gctgacgagt gcatcgtat 450 agaggacaag acactggcag aaatgttgct ccaagaagct gaagaagaga 500

aaaagatccg gactctgctg aatgcaagct gtgacaacat gctgatgggc 550 ataaagtett tgaaaatagt gaagaagatg atggacacae atggetettg 600 gatgaaagat gctgtctata actctccaaa ggtgtactta ttaattggat 650 ccagaaacaa cactgtttgg gaatttgcaa acatacgggc attcatggag 700 gataacacca agccagctcc ccggaagcaa atcctaacac tttcctggca 750 gggaacaggc caagtgatct acaaaggttt tctatttttt cataaccaag 800 caacttctaa tgagataatc aaatataacc tgcagaagag gactgtggaa 850 gatcgaatgc tgctcccagg aggggtaggc cgagcattgg tttaccagca 900 ctcccctca acttacattg acctggctgt ggatgagcat gggctctggg 950 ccatccactc tgggccaggc acccatagcc atttggttct cacaaagatt 1000 gageegggea caetgggagt ggageattea tgggatacee catgeagaag 1050 ccaggatgct gaagcctcat teetettgtg tggggttete tatgtggtet 1100 acagtactgg gggccagggc cctcatcgca tcacctgcat ctatgatcca 1150 ctgggcacta tcagtgagga ggacttgccc aacttgttct tccccaagag 1200 accaagaagt cactccatga tccattacaa ccccagagat aagcagctct 1250 atgcctggaa tgaaggaaac cagatcattt acaaactcca gacaaagaga 1300 aagetgeete tgaagtaatg cattacaget gtgagaaaga geactgtgge 1350 tttggcaget gttetacagg acagtgagge tatageeeet teacaatata 1400 gtatccctct aatcacaca aggaagagtg tgtagaagtg gaaatacgta 1450 tgcctccttt cccaaatgtc actgccttag gtatcttcca agagcttaga 1500 tgagagcata tcatcaggaa agtttcaaca atgtccatta ctcccccaaa 1550 cctcctggct ctcaaggatg accacattct gatacagcct acttcaagcc 1600 ttttgtttta ctgctcccca gcatttactg taactctgcc atcttccctc 1650 ccacaattag agttgtatgc cagcccctaa tattcaccac tggcttttct 1700 ctcccctggc ctttgctgaa gctcttccct ctttttcaaa tgtctattga 1750 tattctccca ttttcactgc ccaactaaaa tactattaat atttctttct 1800 tttcttttct tttttttgag acaaggtctc actatgttgc ccaggctggt 1850 ctcaaactcc agagctcaag agatcctcct gcctcagcct cctaagtacc 1900 tgggattaca ggcatgtgcc accacacctg gcttaaaata ctatttctta 1950 ttgaggttta acctctattt cccctagccc tgtccttcca ctaagcttgg 2000 tagatgtaat aataaagtga aaatattaac atttgaatat cgctttccag 2050 gtgtggagtg tttgcacatc attgaattct cgtttcacct ttgtgaaaca 2100

tgcacaagtc tttacagctg tcattctaga gtttaggtga gtaacacaat 2150 tacaaagtga aagatacagc tagaaaatac tacaaatccc atagttttc 2200 cattgcccaa ggaagcatca aatacgtatg tttgttcacc tactcttata 2250 gtcaatgcgt tcatcgtttc agcctaaaaa taatagtctg tccctttagc 2300 cagttttcat gtctgcacaa gacctttcaa taggcctttc aaatgataat 2350 tcctccagaa aaccagtcta agggtgagga ccccaactct agcctcctct 2400 tgtcttgctg tcctctgttt ctctctttct gctttaaatt caataaaagt 2450 gacactgagc aaaaaaaaaa aaaaa 2475

<210> 367 <211> 402

<212> PRT

<213> Homo sapiens

<400> 367

Met Met Val Ala Leu Arg Gly Ala Ser Ala Leu Leu Val Leu Phe
1 5 10 15

Leu Ala Ala Phe Leu Pro Pro Pro Gln Cys Thr Gln Asp Pro Ala

Met Val His Tyr Ile Tyr Gln Arg Phe Arg Val Leu Glu Gln Gly

Leu Glu Lys Cys Thr Gln Ala Thr Arg Ala Tyr Ile Gln Glu Phe 50 60

Gln Glu Phe Ser Lys Asn Ile Ser Val Met Leu Gly Arg Cys Gln
65 70 75

Thr Tyr Thr Ser Glu Tyr Lys Ser Ala Val Gly Asn Leu Ala Leu 80 85 90

Arg Val Glu Arg Ala Gln Arg Glu Ile Asp Tyr Ile Gln Tyr Leu 95 100 105

Arg Glu Ala Asp Glu Cys Ile Val Ser Glu Asp Lys Thr Leu Ala 110 115 120

Glu Met Leu Leu Gln Glu Ala Glu Glu Glu Lys Lys Ile Arg Thr 125 130 135

Leu Leu Asn Ala Ser Cys Asp Asn Met Leu Met Gly Ile Lys Ser 140 145

Leu Lys Ile Val Lys Lys Met Met Asp Thr His Gly Ser Trp Met 155 160 165

Lys Asp Ala Val Tyr Asn Ser Pro Lys Val Tyr Leu Leu Ile Gly 170 175

Ser Arg Asn Asn Thr Val Trp Glu Phe Ala Asn Ile Arg Ala Phe 185 190 195

Met Glu Asp Asn Thr Lys Pro Ala Pro Arg Lys Gln Ile Leu Thr 200 205 210

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Leu Ser Trp Gln Gly Thr Gly Gln Val Ile Tyr Lys Gly Phe Leu
                215
Phe Phe His Asn Gln Ala Thr Ser Asn Glu Ile Ile Lys Tyr Asn
                                     235
Leu Gln Lys Arg Thr Val Glu Asp Arg Met Leu Leu Pro Gly Gly
                                     250
Val Gly Arg Ala Leu Val Tyr Gln His Ser Pro Ser Thr Tyr Ile
                                     265
Asp Leu Ala Val Asp Glu His Gly Leu Trp Ala Ile His Ser Gly
                275
                                     280
                                                          285
Pro Gly Thr His Ser His Leu Val Leu Thr Lys Ile Glu Pro Gly
                290
                                     295
Thr Leu Gly Val Glu His Ser Trp Asp Thr Pro Cys Arg Ser Gln
                305
                                     310
Asp Ala Glu Ala Ser Phe Leu Leu Cys Gly Val Leu Tyr Val Val
                                     325
Tyr Ser Thr Gly Gly Gln Gly Pro His Arg Ile Thr Cys Ile Tyr
                33<del>5</del>
Asp Pro Leu Gly Thr Ile Ser Glu Glu Asp Leu Pro Asn Leu Phe
                350
                                     355
                                                          360
Phe Pro Lys Arg Pro Arg Ser His Ser Met Ile His Tyr Asn Pro
                                     370
Arg Asp Lys Gln Leu Tyr Ala Trp Asn Glu Gly Asn Gln Ile Ile
Tyr Lys Leu Gln Thr Lys Arg Lys Leu Pro Leu Lys
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<210> 368

<211> 2281

<212> DNA

<213> Homo sapiens

<400> 368

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gctggaccac gccaccctgg tgcgcttcag ccctgactgc agagccttca 500 tegtetgget ggecaacggg gacaccetee gtgtetteaa gatgaccaag 550 cgggaggatg ggggctacac cttcacagcc accccagagg acttccctaa 600 aaagcacaag gcgcctgtca tcgacattgg cattgctaac acagggaagt 650 ttatcatgac tgcctccagt gacaccactg tcctcatctg gagcctgaag 700 ggtcaagtgc tgtctaccat caacaccaac cagatgaaca acacacacgc 750 tgctgtatct ccctgtggca gatttgtagc ctcgtgtggc ttcaccccag 800 atgtgaaggt ttgggaagtc tgctttggaa agaaggggga gttccaggag 850 gtggtgcgag ccttcgaact aaagggccac tccgcggctg tgcactcgtt 900 tgctttctcc aacgactcac ggaggatggc ttctgtctcc aaggatggta 950 catggaaact gtgggacaca gatgtggaat acaagaagaa gcaggacccc 1000 tacttgctga agacaggccg ctttgaagag gcggcgggtg ccgcgccgtg 1050 ccgcctggcc ctctcccca acgcccaggt cttggccttg gccagtggca 1100 gtagtattca tctctacaat acccggcggg gcgagaagga ggagtgcttt 1150 gagegggtee atggegagtg tategeeaae ttgteetttg acateaetgg 1200 cegetttetg geeteetgtg gggaceggge ggtgeggetg tttcacaaca 1250 ctcctggcca ccgagccatg gtggaggaga tgcagggcca cctgaagcgg 1300 gcctccaacg agagcacccg ccagaggctg cagcagcagc tgacccaggc 1350 ccaagagacc ctgaagagcc tgggtgccct gaagaagtga ctctgggagg 1400 geceggegea gaggattgag gaggagggat etggeeteet catggeactg 1450 ctgccatctt tcctcccagg tggaagcctt tcagaaggag tctcctggtt 1500 ttcttactgg tggccctgct tcttcccatt gaaactactc ttgtctactt 1550 aggtetetet ettettgetg getgtgaete etceetgaet agtggeeaag 1600 gtgcttttct tcctcccagg cccagtgggt ggaatctgtc cccacctggc 1650 tggccttgtg gcagcacatc ctcacaccca aagaagtttg taaatgttcc 1750 agaacaacct agagaacacc tgagtactaa gcagcagttt tgcaaggatg 1800 ggagactggg atagcttccc atcacagaac tgtgttccat caaaaagaca 1850 ctaagggatt teettetggg ceteagttet atttgtaaga tggagaataa 1900 tcctctctgt gaactccttg caaagatgat atgaggctaa gagaatatca 1950 agtccccagg tctggaagaa aagtagaaaa gagtagtact attgtccaat 2000 gtcatgaaag tggtaaaagt gggaaccagt gtgctttgaa accaaattag 2050

<210> 369

<211> 447

<212> PRT

<213> Homo sapiens

<400> 369

Met Glu Leu Ser Gln Met Ser Glu Leu Met Gly Leu Ser Val Leu 1 5 10 15

Leu Gly Leu Leu Ala Leu Met Ala Thr Ala Ala Val Ala Arg Gly
20 25 30

Trp Leu Arg Ala Gly Glu Glu Arg Ser Gly Arg Pro Ala Cys Gln 35 40 45

Lys Ala Asn Gly Phe Pro Pro Asp Lys Ser Ser Gly Ser Lys Lys 50 55 60

Gln Lys Gln Tyr Gln Arg Ile Arg Lys Glu Lys Pro Gln Gln His 65 70 75

Asn Phe Thr His Arg Leu Leu Ala Ala Leu Lys Ser His Ser 80 85 90

Gly Asn Ile Ser Cys Met Asp Phe Ser Ser Asn Gly Lys Tyr Leu 95 100 105

Ala Thr Cys Ala Asp Asp Arg Thr Ile Arg Ile Trp Ser Thr Lys \$110\$ \$120\$

Asp Phe Leu Gln Arg Glu His Arg Ser Met Arg Ala Asn Val Glu 125 130 135

Leu Asp His Ala Thr Leu Val Arg Phe Ser Pro Asp Cys Arg Ala 140 145 150

Phe Ile Val Trp Leu Ala Asn Gly Asp Thr Leu Arg Val Phe Lys 155 160 165

Met Thr Lys Arg Glu Asp Gly Gly Tyr Thr Phe Thr Ala Thr Pro 170 175 180

Glu Asp Phe Pro Lys Lys His Lys Ala Pro Val Ile Asp Ile Gly 185 190

Ile Ala Asn Thr Gly Lys Phe Ile Met Thr Ala Ser Ser Asp Thr  $200 \\ \hspace{1.5cm} 205 \\ \hspace{1.5cm} 210$ 

Thr Val Leu Ile Trp Ser Leu Lys Gly Gln Val Leu Ser Thr Ile 215 220 220

Asn Thr Asn Gln Met Asn Asn Thr His Ala Ala Val Ser Pro Cys 230 235 240

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Gly Arg Phe Val Ala Ser Cys Gly Phe Thr Pro Asp Val Lys Val
Trp Glu Val Cys Phe Gly Lys Lys Gly Glu Phe Gln Glu Val Val
                 260
Arg Ala Phe Glu Leu Lys Gly His Ser Ala Ala Val His Ser Phe
                 275
                                     280
Ala Phe Ser Asn Asp Ser Arg Arg Met Ala Ser Val Ser Lys Asp
                 290
                                     295
                                                          300
Gly Thr Trp Lys Leu Trp Asp Thr Asp Val Glu Tyr Lys Lys
                 305
                                     310
                                                          315
Gln Asp Pro Tyr Leu Leu Lys Thr Gly Arg Phe Glu Glu Ala Ala
                 320
Gly Ala Ala Pro Cys Arg Leu Ala Leu Ser Pro Asn Ala Gln Val
                                     340
Leu Ala Leu Ala Ser Gly Ser Ser Ile His Leu Tyr Asn Thr Arg
                                     355
                                                         360
Arg Gly Glu Lys Glu Glu Cys Phe Glu Arg Val His Gly Glu Cys
                365
Ile Ala Asn Leu Ser Phe Asp Ile Thr Gly Arg Phe Leu Ala Ser
                380
                                     385
Cys Gly Asp Arg Ala Val Arg Leu Phe His Asn Thr Pro Gly His
                395
                                     400
                                                         405
Arg Ala Met Val Glu Glu Met Gln Gly His Leu Lys Arg Ala Ser
                410
                                     415
Asn Glu Ser Thr Arg Gln Arg Leu Gln Gln Gln Leu Thr Gln Ala
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Gln Glu Thr Leu Lys Ser Leu Gly Ala Leu Lys Lys
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<211> 1415

<212> DNA

<213> Homo sapiens

440

<400> 370

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atttttaggc gettgeetgg teteaggata eccaccatee tttteetgag 450 cacagootgg attittatti etgocatgaa acceagotec catgactete 500 ccaqtcccta cactgactac cctgatctct cttgtctagt acgcacatat 550 gcacacagge agacatacct cccatcatga catggtcccc aggctggcct 600 gaggatgtca cagcttgagg ctgtggtgtg aaaggtggcc agcctggttc 650 tetteectge teaggetgee agagaggtgg taaatggeag aaaggacatt 700 cececteece tecceaggtg acetgetete ttteetggge cetgeecete 750 tececacatq tatecetegq tetgaattaq acatteetqq qeacaqqete 800 ttgggtgcat tgctcagagt cccaggtcct ggcctgaccc tcaggccctt 850 cacgtgaggt ctgtgaggac caatttgtgg gtagttcatc ttccctcgat 900 tggttaactc cttagtttca gaccacagac tcaagattgg ctcttcccag 950 agggcagcag acagtcaccc caaggcaggt gtagggagcc cagggaggcc 1000 aatcagcccc ctgaagactc tggtcccagt cagcctgtgg cttgtggcct 1050 gtgacctgtg accttctgcc agaattgtca tgcctctgag gccccctctt 1100 accacacttt accagttaac cactgaagcc cccaattccc acagcttttc 1150 cattaaaatg caaatggtgg tggttcaatc taatctgata ttgacatatt 1200 agaaggcaat tagggtgttt ccttaaacaa ctcctttcca aggatcagcc 1250 ctgagagcag gttggtgact ttgaggaggg cagtcctctg tccagattgg 1300 ggtgggagca agggacaggg agcagggcag gggctgaaag gggcactgat 1350 tcagaccagg gaggcaacta cacaccaaca tgctggcttt agaataaaag 1400 caccaactga aaaaa 1415

<210> 371 <211> 105 <212> PRT <213> Homo sapiens

<400> 371

Met Arg Gly Ala Thr Arg Val Ser Ile Met Leu Leu Leu Val Thr  $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$ 

Val Ser Asp Cys Ala Val Ile Thr Gly Ala Cys Glu Arg Asp Val 20 25 30

Gln Cys Gly Ala Gly Thr Cys Cys Ala Ile Ser Leu Trp Leu Arg 35 40 45

Gly Leu Arg Met Cys Thr Pro Leu Gly Arg Glu Gly Glu Glu Cys
50 55 60

His Pro Gly Ser His Lys Val Pro Phe Phe Arg Lys Arg Lys His 65 70 75

His Thr Cys Pro Cys Leu Pro Asn Leu Leu Cys Ser Arg Phe Pro 80 85 90

Asp Gly Arg Tyr Arg Cys Ser Met Asp Leu Lys Asn Ile Asn Phe 95 100 105

- <210> 372
- <211> 1281
- <212> DNA
- <213> Homo sapiens
- <400> 372

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<211> 229
<212> PRT
<213> Homo sapiens
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 Leu Ala Asn Thr Asp Val Phe Leu Ser Lys Pro Gln Lys Ala Ala
                  35
 Leu Glu Tyr Leu Glu Asp Ile Asp Leu Lys Thr Leu Glu Lys Glu
 Pro Arg Thr Phe Lys Ala Lys Glu Leu Trp Glu Lys Asn Gly Ala
 Val Ile Met Ala Val Arg Arg Pro Gly Cys Phe Leu Cys Arg Glu
 Glu Ala Ala Asp Leu Ser Ser Leu Lys Ser Met Leu Asp Gln Leu
 Gly Val Pro Leu Tyr Ala Val Val Lys Glu His Ile Arg Thr Glu
                 110
                                     115
                                                         120
 Val Lys Asp Phe Gln Pro Tyr Phe Lys Gly Glu Ile Phe Leu Asp
 Glu Lys Lys Lys Phe Tyr Gly Pro Gln Arg Arg Lys Met Met Phe
 Met Gly Phe Ile Arg Leu Gly Val Trp Tyr Asn Phe Phe Arg Ala
 Trp Asn Gly Gly Phe Ser Gly Asn Leu Glu Gly Glu Gly Phe Ile
 Leu Gly Gly Val Phe Val Val Gly Ser Gly Lys Gln Gly Ile Leu
                 185
                                     190
 Leu Glu His Arg Glu Lys Glu Phe Gly Asp Lys Val Asn Leu Leu
                 200
                                     205
 Ser Val Leu Glu Ala Ala Lys Met Ile Lys Pro Gln Thr Leu Ala
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Ser Glu Lys Lys

<210> 374

<211> 744

<212> DNA

<213> Homo sapiens

<400> 374

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<211> 123

<212> PRT

<213> Homo sapiens

<400> 375

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Phe Leu Leu Ala Arg Trp Gly Arg Ala Trp Gly Gln Ile Gln Thr 20 25 30

Thr Ser Ala Asn Glu Asn Ser Thr Val Leu Pro Ser Ser Thr Ser 35 40 45

Ser Ser Ser Asp Gly Asn Leu Arg Pro Glu Ala Ile Thr Ala Ile
50 55 60

Ile Val Val Phe Ser Leu Leu Ala Ala Leu Leu Leu Ala Val Gly 65 70 75

Leu Ala Leu Leu Val Arg Lys Leu Arg Glu Lys Arg Gln Thr Glu 80 85 90

Gly Thr Tyr Arg Pro Ser Ser Glu Glu Gln Phe Ser His Ala Ala 95 100 105

Glu Ala Arg Ala Pro Gln Asp Ser Lys Glu Thr Val Gln Gly Cys 110 115 120

Leu Pro Ile

<210> 376

<211> 713

<212> DNA

<213> Homó sapiens

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 tttctgtcac tattattatt gttggtatgt gaagctattt ggagatccaa 150
 ttcaggaagc aacacattgg agaatggcta ctttctatca agaaataaag 200
 agaaccacag tcaacccaca caatcatctt tagaagacag tgtgactcct 250
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 ttacagaatt gacattttaa atgcgataca gttagaatag gaaatatgac 650
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aaggaaaaaa aaa 713
<210> 377
<211> 90
<212> PRT
<213> Homo sapiens
<400> 377
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 Ile Trp Arg Ser Asn Ser Gly Ser Asn Thr Leu Glu Asn Gly Tyr
 Phe Leu Ser Arg Asn Lys Glu Asn His Ser Gln Pro Thr Gln Ser
 Ser Leu Glu Asp Ser Val Thr Pro Thr Lys Ala Val Lys Thr Thr
Gly Lys Gly Ile Val Lys Gly Arg Asn Leu Asp Ser Arg Gly Leu
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<211> 3265

<212> DNA

<213> Homo sapiens

<400> 378

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<210> 379

<211> 919

<212> PRT

<213> Homo sapiens

<400> 379

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Phe Glu Asp Ile Val Ile Val Ile Asp Pro Ser Val Pro Glu Asp 35 40 45

Glu Lys Ile Ile Glu Gln Ile Glu Asp Met Val Thr Thr Ala Ser
50 55 60

Thr Tyr Leu Phe Glu Ala Thr Glu Lys Arg Phe Phe Phe Lys Asn
65 70 75

Val Ser Ile Leu Ile Pro Glu Asn Trp Lys Glu Asn Pro Gln Tyr 80 85 90

Lys Arg Pro Lys His Glu Asn His Lys His Ala Asp Val Ile Val 95 100

Ala Pro Pro Thr Leu Pro Gly Arg Asp Glu Pro Tyr Thr Lys Gln
110 115 120

Phe Thr Glu Cys Gly Glu Lys Gly Glu Tyr Ile His Phe Thr Pro 125 130 135

Asp Leu Leu Gly Lys Lys Gln Asn Glu Tyr Gly Pro Pro Gly 140 145 150

Lys Leu Phe Val His Glu Trp Ala His Leu Arg Trp Gly Val Phe 155 160 165

Asp Glu Tyr Asn Glu Asp Gln Pro Phe Tyr Arg Ala Lys Ser Lys

Lys Ile Glu Ala Thr Arg Cys Ser Ala Gly Ile Ser Gly Arg Asn 185 190 195

Arg Val Tyr Lys Cys Gln Gly Gly Ser Cys Leu Ser Arg Ala Cys 200 205 210

Arg Ile Asp Ser Thr Thr Lys Leu Tyr Gly Lys Asp Cys Gln Phe \$215\$ \$220\$

Phe Pro Asp Lys Val Gln Thr Glu Lys Ala Ser Ile Met Phe Met 230 235

Gln Ser Ile Asp Ser Val Val Glu Phe Cys Asn Glu Lys Thr His
245 250 255

Asn Gln Glu Ala Pro Ser Leu Gln Asn Ile Lys Cys Asn Phe Arg 260 265 270

Ser Thr Trp Glu Val Ile Ser Asn Ser Glu Asp Phe Lys Asn Thr

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Ile	Pro	Met	Val	Thr 290	Pro	Pro	Pro	Pro	Pro 295	Val	Phe	Ser	Leu	Leu 300
Lys	Ile	Ser	Gln	Arg 305	Ile	Val	Cys	Leu	Val 310	Leu	Asp	Lys	Ser	Gly 315
Ser	Met	Gly	Gly	Lys 320	Asp	Arg	Leu	Asn	Arg 325	Met	Asn	Gln	Ala	Ala 330
Lys	His	Phe	Leu	Leu 335	Gln	Thr	Val	Glu	Asn 340	Gly	Ser	Trp	Val	Gly 345
Met	Val	His	Phe	Asp 350	Ser	Thr	Ala	Thr	Ile 355	Val	Asn	Lys	Leu	Ile 360
Gln	Ile	Lys	Ser	Ser 365	Asp	Glu	Arg	Asn	Thr 370	Leu	Met	Ala	Gly	Leu 375
Pro	Thr	Tyr	Pro	Leu 380	Gly	Gly	Thr	Ser	Ile 385	Суз	Ser	Gly	Ile	Lys 390
Tyr	Ala	Phe	Gln	Val 395	Ile	Gly	Glu	Leu	His 400	Ser	Gln	Leu	Asp	Gly 405
Ser	Glu	Val	Leu	Leu 410	Leu	Thr	Asp	Gly	Glu 415	Asp	Asn	Thr	Ala	Ser 420
Ser	Суѕ	Ile	Asp	Glu 425	Val	Lys	Gln	Ser	Gly 430	Ala	Ile	Val	His	Phe 435
Ile	Ala	Leu	Gly	Arg 440	Ala	Ala	Asp	Glu	Ala 445	Val	Ile	Glu	Met	Ser 450
Lys	Ile	Thr	Gly	Gly 455	Ser	His	Phe	Tyr	Val 460	Ser	Asp	Glu	Ala	Gln 465
Asn	Asn	Gly	Leu	Ile 470	Asp	Ala	Phe	Gly	Ala 475	Leu	Thr	Ser	Gly	Asn 480
Thr	Asp	Leu	Ser	Gln 485	Lys	Ser	Leu	Gln	Leu 490	Glu	Ser	Lys	Gly	Leu 495
Thr	Leu	Asn	Ser	Asn 500	Ala	Trp	Met	Asn	Asp 505	Thr	Val	Ile	Ile	Asp 510
Ser	Thr	Val	Gly	Lys 515	Asp	Thr	Phe	Phe	Leu 520	Ile	Thr	Trp	Asn	Ser 525
Leu	Pro	Pro	Ser	Ile 530	Ser	Leu	Trp	Asp	Pro 535	Ser	Gly	Thr	Ile	Met 540
Glu	Asn	Phe	Thr	Val 545	Asp	Ala	Thr	Ser	Lys 550	Met	Ala	Tyr	Leu	Ser 555
Ile	Pro	Gly	Thr	Ala 560	Lys	Val	Gly	Thr	Trp 565	Ala	Tyr	Asn	Leu	Gln 570
Ala	Lys	Ala	Asn	Pro 575	Glu	Thr	Leu	Thr	Ile 580	Thr	Val	Thr	Ser	Arg 585
Ala	Ala	Asn	Ser	Ser	Val	Pro	Pro	Ile	Thr	Val	Asn	Ala	Lys	Met

				590					595					600
Asn	Lys	Asp	Val	Asn 605	Ser	Phe	Pro	Ser	Pro 610	Met	Ile	Val	Tyr	Ala 615
Glu	Ile	Leu	Gln	Gly 620	Tyr	Val	Pro	Val	Leu 625	Gly	Ala	Asn	Val	Thr 630
Ala	Phe	Ile	Glu	Ser 635	Gln	Asn	Gly	His	Thr 640	Glu	Val	Leu	Glu	Leu 645
Leu	Asp	Asn	Gly	Ala 650	Gly	Ala	Asp	Ser	Phe 655	Lys	Asn	Asp	Gly	Val 660
Tyr	Ser	Arg	Tyr	Phe 665	Thr	Ala	Tyr	Thr	Glu 670	Asn	Gly	Arg	Tyr	Ser 675
Leu	Lys	Val	Arg	Ala 680	His	Gly	Gly	Ala	Asn 685	Thr	Ala	Arg	Leu	Lys 690
Leu	Arg	Pro	Pro	Leu 695	Asn	Arg	Ala	Ala	Tyr 700	Ile	Pro	Gly	Trp	Val 705
Val	Asn	Gly	Glu	Ile 710	Glu	Ala	Asn	Pro	Pro 715	Arg	Pro	Glu	Ile	Asp 720
Glu	Asp	Thr	Gln	Thr 725	Thr	Leu	Glu	Asp	Phe 730	Ser	Arg	Thr	Ala	Ser 735
Gly	Gly	Ala	Phe	Val 740	Val	Ser	Gln	Val	Pro 745	Ser	Leu	Pro	Leu	Pro 750
Asp	Gln	Tyr	Pro	Pro 755	Ser	Gln	Ile	Thr	Asp 760	Leu	Asp	Ala	Thr	Val 765
His	Glu	Asp	Lys	Ile 770	Ile	Leu	Thr	Trp	Thr 775	Ala	Pro	Gly	Asp	Asn 780
Phe	Asp	Val	Gly	Lys 785	Val	Gln	Arg	Tyr	Ile 790	Ile	Arg	Ile	Ser	Ala 795
Ser	Ile	Leu	Asp	Leu 800	Arg	Asp	Ser	Phe	Asp 805	Asp	Ala	Leu	Gln	Val 810
Asn	Thr	Thr	Asp	Leu 815	Ser	Pro	Lys	Glu	Ala 820	Asn	Ser	Lys	Glu	Ser 825
Phe	Ala	Phe	Lys	Pro 830	Glu	Asn	Ile	Ser	Glu 835	Glu	Asn	Ala	Thr	His 840
Ile	Phe	Ile	Ala	Ile 845	Lys	Ser	Ile	Asp	Lys 850	Ser	Asn	Leu	Thr	Ser 855
Lys	Val	Ser	Asn	Ile 860	Ala	Gln	Val	Thr	Leu 865	Phe	Ile	Pro	Gln	Ala 870
Asn	Pro	Asp	Asp	Ile 875	Asp	Pro	Thr	Pro	Thr 880	Pro	Thr	Pro	Thr	Pro 885
Thr	Pro	Asp	Lys	Ser 890	His	Asn	Ser	Gly	Val 895	Asn	Ile	Ser	Thr	Leu 900
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<210> 380

<211> 3877

<212> DNA

<213> Homo sapiens

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<210> 381

<211> 532

<212> PRT

<213> Homo sapiens

<400> 381

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Val Val Leu Leu Val Leu Cys Cys Ala Ile Ser Val Leu Tyr \$20\$ \$25\$ \$30

Met Leu Ala Cys Thr Pro Lys Gly Asp Glu Glu Gln Leu Ala Leu 35 40 45

Pro Arg Ala Asn Ser Pro Thr Gly Lys Glu Gly Tyr Gln Ala Val50~ 55  $\,$  60  $\,$ 

Leu Gln Glu Trp Glu Glu Gln His Arg Asn Tyr Val Ser Ser Leu
65 70 75

Lys Arg Gln Ile Ala Gln Leu Lys Glu Glu Leu Gln Glu Arg Ser 80 85 90

Glı	ı Glr	ı Leı	ı Arç	g Ası 95	n Gly	/ Glr	туг	Glr	n Ala 100		: Asp	Ala	a Alá	Gly 105
Let	ı Gly	/ Leu	ı Asp	Arg 110	g Ser	Pro	) Pro	Glu	Lys 115	Thr	Gln	Ala	a Asp	Leu 120
Leu	a Ala	a Phe	e Let	His 125	s Ser	Gln	ı Val	. Asp	Lys 130		Glu	Val	. Asr	135
Gly	Val	. Lys	Leu	140	Thr	Glu	Tyr	Ala	Ala 145	Val	Pro	Ph∈	a Asp	Ser 150
Phe	Thr	Leu	Gln	Lys 155	Val	Tyr	Gln	Leu	Glu 160	Thr	Gly	Leu	Thr	Arg 165
His	Pro	Glu	Glu	Lys 170	Pro	Val	Arg	Lys	Asp 175	Lys	Arg	Asp	Glu	Leu 180
Val	Glu	. Ala	Ile	Glu 185	Ser	Ala	Leu	Glu	Thr 190	Leu	Asn	Asn	Pro	Ala 195
Glu	Asn	Ser	Pro	Asn 200	His	Arg	Pro	Tyr	Thr 205	Ala	Ser	Asp	Phe	Ile 210
Glu	Gly	Ile	Tyr	Arg 215	Thr	Glu	Arg	Asp	Lys 220	Gly	Thr	Leu	Tyr	Glu 225
				230					Glu 235					240
				245					Lys 250					255
				260					Val 265					270
				275					Met 280					285
				290					His 295					300
				305					Lys 310					315
				320					Phe 325					330
				335					Leu 340					345
				350					Phe 355					360
				365					Thr 370					375
				380					Val : 385					390
Asn	Pro	Gly	Ile	Ile 395	Tyr	Gly	His		Asp 2 400	Ala	Val	Pro	Pro	Leu 405

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Glu Gln Gln Leu Val Ile Lys Lys Glu Thr Gly Phe Trp Arg Asp
 Phe Gly Phe Gly Met Thr Cys Gln Tyr Arg Ser Asp Phe Ile Asn
                 425
                                      430
 Ile Gly Gly Phe Asp Leu Asp Ile Lys Gly Trp Gly Gly Glu Asp
 Val His Leu Tyr Arg Lys Tyr Leu His Ser Asn Leu Ile Val Val
 Arg Thr Pro Val Arg Gly Leu Phe His Leu Trp His Glu Lys Arg
                 470
                                      475
                                                          480
 Cys Met Asp Glu Leu Thr Pro Glu Gln Tyr Lys Met Cys Met Gln
                                      490
 Ser Lys Ala Met Asn Glu Ala Ser His Gly Gln Leu Gly Met Leu
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 Val Phe Arg His Glu Ile Glu Ala His Leu Arg Lys Gln Lys Gln
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                                     520
 Lys Thr Ser Ser Lys Lys Thr
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gcgaaggtga gcctctatct cgtgcc 26
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cagcctacac gtattgagg 19
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<210> 386
<211> 1346
<212> DNA
<213> Homo sapiens
<400> 386
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ctcttcaaag cgatggtagc tttctccatg agaaaagttc ccaacagaga 200
agcaacagaa atttcccatg tcctactttg caatgtaacc cagagggtat 250
cattctggtt tgtggttaca gacccttcaa aaaatcacac ccttcctgct 300
gttgaggtgc aatcagccat aagaatgaac aagaaccgga tcaacaatgc 350
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ttgcaccacc catggaccca tctgtgccca tctggattat tatatttggt 450
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gatctggcaa cgtagaagaa agaacaaaga accatctgaa gtggatgacg 550
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aattaaacat ttgtttctgt gtgactgctg agcatcctga aataccaaga 750
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tagtgtataa atgtggtcat gtggtatttg tagttattga tttaagcatt 950
tttagaaata agatcaggca tatgtatata ttttcacact tcaaagacct 1000
aaggaaaaat aaattttcca gtggagaata catataatat ggtgtagaaa 1050
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<210> 387

<211> 212

<212> PRT

<213> Homo sapiens

<400> 387

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Leu Cys Gln Pro Gly Ala Glu Asn Ala Phe Lys Val Arg Leu Ser 20 25 30

Ile Arg Thr Ala Leu Gly Asp Lys Ala Tyr Ala Trp Asp Thr Asn 35 40 45

Glu Glu Tyr Leu Phe Lys Ala Met Val Ala Phe Ser Met Arg Lys 50 55 60

Val Pro Asn Arg Glu Ala Thr Glu Ile Ser His Val Leu Leu Cys
65 70 75

Asn Val Thr Gln Arg Val Ser Phe Trp Phe Val Val Thr Asp Pro 80 85 90

Ser Lys Asn His Thr Leu Pro Ala Val Glu Val Gln Ser Ala Ile 95 100 105

Arg Met Asn Lys Asn Arg Ile Asn Asn Ala Phe Phe Leu Asn Asp 110 115 120

Gln Thr Leu Glu Phe Leu Lys Ile Pro Ser Thr Leu Ala Pro Pro 125 130 135

Met Asp Pro Ser Val Pro Ile Trp Ile Ile Ile Phe Gly Val Ile 140 140 145 150

Phe Cys Ile Ile Ile Val Ala Ile Ala Leu Leu Ile Leu Ser Gly 155 160 165

Ile Trp Gln Arg Arg Arg Lys Asn Lys Glu Pro Ser Glu Val Asp 170 175 180

Asp Ala Glu Asp Lys Cys Glu Asn Met Ile Thr Ile Glu Asn Gly 185 190 190

Ile Pro Ser Asp Pro Leu Asp Met Lys Gly Gly Ile Leu Met Met 200 205 210

Pro Ser

<210> 388

<211> 1371

<212> DNA

<213> Homo sapiens

<400> 388

aactcaaact cctctctg ggaaaacgcg gtgcttgctc ctcccggagt 50

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gccaaggctg ggtttccctc atgtatggca agagctctac tcgtgcggtg 150
cttcttctcc ttggcataca gctcacagct ctttggccta tagcagctgt 200
ggaaatttat acctcccggg tgctggaggc tgttaatggg acagatgctc 250
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aaaggggata aaagccaatt tgtctgttac atttcctttc acgtatttct 1150
tttagcagca cttctgctac taaagttaat gtgtttactc tctttccttc 1200
ccacattete aattaaaagg tgagetaage eteeteggtg tttetgatta 1250
acagtaaatc ctaaattcaa actgttaaat gacattttta tttttatgtc 1300
tctccttaac tatgagacac atcttgtttt actgaatttc tttcaatatt 1350
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<210> 389
<211> 215
<212> PRT
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<sup>&</sup>lt;213> Homo sapiens

<sup>&</sup>lt;400> 389

Met Tyr Gly Lys Ser Ser Thr Arg Ala Val Leu Leu Leu Gly

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Ile Gln Leu Thr Ala Leu Trp Pro Ile Ala Ala Val Glu Ile Tyr
 Thr Ser Arg Val Leu Glu Ala Val Asn Gly Thr Asp Ala Arg Leu
 Lys Cys Thr Phe Ser Ser Phe Ala Pro Val Gly Asp Ala Leu Thr
                  50
 Val Thr Trp Asn Phe Arg Pro Leu Asp Gly Gly Pro Glu Gln Phe
 Val Phe Tyr Tyr His Ile Asp Pro Phe Gln Pro Met Ser Gly Arg
 Phe Lys Asp Arg Val Ser Trp Asp Gly Asn Pro Glu Arg Tyr Asp
 Ala Ser Ile Leu Leu Trp Lys Leu Gln Phe Asp Asp Asn Gly Thr
                                     115
 Tyr Thr Cys Gln Val Lys Asn Pro Pro Asp Val Asp Gly Val Ile
 Gly Glu Ile Arg Leu Ser Val Val His Thr Val Arg Phe Ser Glu
 Ile His Phe Leu Ala Leu Ala Ile Gly Ser Ala Cys Ala Leu Met
                 155
                                     160
 Ile Ile Val Ile Val Val Leu Phe Gln His Tyr Arg Lys
 Lys Arg Trp Ala Glu Arg Ala His Lys Val Val Glu Ile Lys Ser
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 Lys Glu Glu Glu Arg Leu Asn Gln Glu Lys Lys Val Ser Val Tyr
 Leu Glu Asp Thr Asp
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<211> 24
<212> DNA
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<400> 390
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<211> 25

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<211> 471
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 gatgatgaag cccctgatgc tgaaaccact gctgctgcaa ccactgcgac 200
 cactgctgct cctaccactg caaccaccgc tgcttctacc actgctcgta 250
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 tattcatgct tcctgtgatt tcatccaact acttaccttg cctacgatat 400
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<210> 394
<211> 90
<212> PRT
<213> Homo sapiens
<400> 394
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 Leu Val Ser Ala Gln Asn Pro Thr Thr Ala Ala Pro Ala Asp Thr
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                                      25
                                                           30
 Tyr Pro Ala Thr Gly Pro Ala Asp Asp Glu Ala Pro Asp Ala Glu
 Thr Thr Ala Ala Ala Thr Thr Ala Thr Thr Ala Ala Pro Thr Thr
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Ala Thr Thr Ala Ala Ser Thr Thr Ala Arg Lys Asp Ile Pro Val
Leu Pro Lys Trp Val Gly Asp Leu Pro Asn Gly Arg Val Cys Pro
<210> 395
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346

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<223> Synthetic oligonucleotide probe
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<210> 396
<211> 26
<212> DNA
<213> Artificial Sequence
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<223> Synthetic oligonucleotide probe
<400> 396
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<210> 397
<211> 42
<212> DNA
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<223> Synthetic oligonucleotide probe
<400> 397
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<210> 398
<211> 907
<212> DNA
<213> Homo sapiens
<400> 398
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 aaccttggac ccctaggggt ctggatttgc tggttaacaa gataacctga 100
 gggcaggacc ccatagggga atgctacctc ctgcccttcc acctgccctg 150
gtgttcacgg tggcctggtc cctccttgcc gagagagtgt cctgggtcag 200
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<210> 399

<211> 120

<212> PRT

<213> Homo sapiens

<400> 399

Met Leu Pro Pro Ala Leu Pro Pro Ala Leu Val Phe Thr Val Ala 1 5 10 15

Trp Ser Leu Leu Ala Glu Arg Val Ser Trp Val Arg Asp Ala Glu
20 25 30

Asp Ala His Arg Leu Gln Pro Phe Val Thr Glu Arg Thr Leu Gly 35 40 45

Lys Val Gln Arg Trp Ser Gly Val His Thr Gln Thr Gly Gly Arg 50 55 60

Ala Gly Gly Gln Phe Cys Cys Ala Trp Leu Asp Ser Lys Arg
65 70 75

Val Leu Ala Ser Pro Gly Trp Gly Ala Ala Asn Ser Ile Lys Asn 80 85 90

Gln Arg Val Trp Ala Pro Ala Thr Glu Ser Ser Ala Gln Leu Leu 95 100 105

Cys Cys Trp Pro Val Gly Val Ala Arg Gly Gly Ala Leu Cys Gln
110 115

<210> 400

<211> 893

<212> DNA

<213> Homo sapiens

<400> 400

streatgread type test gtgertyct tyggertyct caatgytyae 50 ceggertyce teagegyce ceatgygegy ceeagaacty geacageaty 100 aggagetyae cetystette catgygacce tygagetygy ceaggerete 150 aacgytyty acagyaccae ggagygacyg ctgacaaagy ceaggaacag 200 cetygytet tatgycegea caatagaact cetygygeay gagyteagee 250 ggggeegya tygageceay gaacttegyg caageetytt ggagaeteay 300 atgyagygagy geecagyea agaagytyet acagyacae agagytyet acgygacae gtgagytyet 350 ggggaagyty geecagycae agaagytyet acgygacage gtgcagegyc 400

<210> 401 <211> 198 <212> PRT

<213> Homo sapiens

<400> 401

Met Pro Val Pro Ala Leu Cys Leu Leu Trp Ala Leu Ala Met Val 1 5 10 15

Thr Arg Pro Ala Ser Ala Ala Pro Met Gly Gly Pro Glu Leu Ala 20 25 30

Gln His Glu Glu Leu Thr Leu Leu Phe His Gly Thr Leu Gln Leu 35 40 45

Gly Gln Ala Leu Asn Gly Val Tyr Arg Thr Thr Glu Gly Arg Leu
50 55 60

Thr Lys Ala Arg Asn Ser Leu Gly Leu Tyr Gly Arg Thr Ile Glu 65 70 75

Leu Leu Gly Gln Glu Val Ser Arg Gly Arg Asp Ala Ala Gln Glu 80 85 90

Leu Arg Ala Ser Leu Leu Glu Thr Gln Met Glu Glu Asp Ile Leu 95 100 105

Gln Ala Gln Lys Val Leu Arg Asp Ser Val Gln Arg Leu Glu Val 125 130 135

Gln Leu Arg Ser Ala Trp Leu Gly Pro Ala Tyr Arg Glu Phe Glu 140 145 150

Val Leu Lys Ala His Ala Asp Lys Gln Ser His Ile Leu Trp Ala 155 160 165

Leu Thr Gly His Val Gln Arg Gln Arg Glu Met Val Ala Gln 170 175 180

Gln His Arg Leu Arg Gln Ile Gln Glu Arg Leu His Thr Ala Ala

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ين عرق <210> 402

<211> 1915 <212> DNA

<213> Homo sapiens

<400> 402

ggcaacatgg ctcagcaggc ttgccccaga gccatggcaa agaatggact 50 tgtaatttgc atcctggtga tcaccttact cctggaccag accaccagcc 100 acacatccag attaaaagcc aggaagcaca gcaaacgtcg agtgagagac 150 aaggatggag atctgaagac tcaaattgaa aagctctgga cagaagtcaa 200 tgccttgaag gaaattcaag ccctgcagac agtctgtctc cgaggcacta 250 aagttcacaa gaaatgctac cttgcttcag aaggtttgaa gcatttccat 300 gaggccaatg aagactgcat ttccaaagga ggaatcctgg ttatccccag 350 gaactccgac gaaatcaacg ccctccaaga ctatggtaaa aggagcctgc 400 caggtgtcaa tgacttttgg ctgggcatca atgacatggt cacggaaggc 450 aagtttgttg acgtcaacgg aatcgctatc tccttcctca actgggaccg 500 tgcacageet aacggtggca agcgagaaaa ctgtgteetg tteteccaat 550 cageteaggg caagtggagt gatgaggeet gtegeageag caagagatae 600 atatgcgagt tcaccatccc taaataggtc tttctccaat gtgtcctcca 650 agcaagattc atcataactt ataggttcat gatctctaag atcaagtaaa 700 aatcataatt tttacttatt aaaaaattgc aacacaagat caatgtccat 750 agcaatatga tagcatcagc caattttgct aacacatttc tttgggattt 800 tgcccttcct ggggtatagg ggatcagaaa tattgatcca tgtgcacgca 850 gataaaatgg cttctgctaa acagactaaa atctttctct ctagtctttc 900 tcacttgtac aaacccagtt tgttttcaaa aaatcacagt agcaatgcaa 950 ctcatcactc tagaaaagca agcttaggct acctgaaaga ttttcccttg 1000 gaagtttagc gtatgtttga ctaacaaaaa ttccctacat cagagactct 1050 aggtgctata taatccaaaa acttttcagc ctgttgctca ttctgtccca 1100 tgctggcaat aatacettgt cageceatta eeettatttt gaattgetee 1150 atctcctggt gggacttgta tcttgtctgc catatcagaa cacaaacccc 1200 tgaagaggtt ctgatttgat ttttttttt tcttcatgcc tacccttttt 1250 ttggaagttt ccagccgcaa tttgaaatga aatgacaagg tgtatatttg 1300

accctaagge atateaaga ageagattge atgataaaeg gaaatagaaa 1400 aaaagaacet acatttatt tgetttagea teettaetet eacettttat 1450 gagattgaga gtggaettae attteettt ttacatttee gtatattat 1500 ttttttage cateattata tgtttaagte tattatggge aaceaatett 1550 tggaagetga aaactgaatt taaagaatge tatettggaa aattgeatae 1600 gtetgtgeaa tttttatte tgeetagtge tattetget gtttaactag 1650 attgtacaaa ataactteat tgettaatat caaattacaa agtttagaet 1700 tggagggaaa tgggetttt agaageaae aattttaaat atattttgtt 1750 etteaaataa atagtgtta aacattgaat gtgttttgg aacaatatee 1800 caetttgeaa actttaacta eacatgettg gaattaagtt ttagetgtt 1850 teattgetea ataataaage etgaattetg ateaataaa aaaaaaaaa 1900 aaaaaaaaaaa aaaaa 1915

<210> 403

<211> 206

<212> PRT

<213> Homo sapiens

<400> 403

Met Ala Gln Gln Ala Cys Pro Arg Ala Met Ala Lys Asn Gly Leu
1 5 10 15

Val Ile Cys Ile Leu Val Ile Thr Leu Leu Leu Asp Gln Thr Thr 20 25 30

Ser His Thr Ser Arg Leu Lys Ala Arg Lys His Ser Lys Arg Arg 35 40 45

Val Arg Asp Lys Asp Gly Asp Leu Lys Thr Gln Ile Glu Lys Leu
50 55 60

Trp Thr Glu Val Asn Ala Leu Lys Glu Ile Gln Ala Leu Gln Thr 65 70 75

Val Cys Leu Arg Gly Thr Lys Val His Lys Lys Cys Tyr Leu Ala 80 85 90

Ser Glu Gly Leu Lys His Phe His Glu Ala Asn Glu Asp Cys Ile 95 100 105

Asn Ala Leu Gln Asp Tyr Gly Lys Arg Ser Leu Pro Gly Val Asn 125 130 135

Asp Phe Trp Leu Gly Ile Asn Asp Met Val Thr Glu Gly Lys Phe 140 145 150

Val Asp Val Asn Gly Ile Ala Ile Ser Phe Leu Asn Trp Asp Arg

155 160 165

Ala Gln Pro Asn Gly Gly Lys Arg Glu Asn Cys Val Leu Phe Ser 170 175

Gln Ser Ala Gln Gly Lys Trp Ser Asp Glu Ala Cys Arg Ser Ser 185 190 195

Lys Arg Tyr Ile Cys Glu Phe Thr Ile Pro Lys
200 205

<210> 404

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 404

cctggttatc cccaggaact ccgac 25

<210> 405

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 405

ctcttgctgc tgcgacaggc ctc 23

<210> 406

<211> 46

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 406

cgccctccaa gactatggta aaaggagcct gccaggtgtc aatgac 46

<210> 407

<211> 570

<212> DNA

<213> Homo sapiens

<400> 407

gcgaggaccg ggtataagaa gcctcgtggc cttgcccggg cagccgcagg 50

ttccccgcgc gccccgagcc cccgcgccat gaagctcgcc gccctcctgg 100

ggetetgegt ggeeetgtee tgeageteeg etgetgettt ettagtggge 150

teggecaage etgtggecca geetgteget gegetggagt eggeggegga 200

ggccggggcc gggaccctgg ccaaccccct cggcaccctc aacccgctga 250

ageteetget gageageetg ggeateeceg tgaaceaeet catagaggge 300 -

teccagaagt gtgtggetga getgggteee caggeegtgg gggeegtgaa 350

ggccctgaag gccctggg gggccctgac agtgtttggc tgagccgaga 400 ctggagcatc tacacctgag gacaagacgc tgcccacccg cgagggctga 450 aaaccccgcc gcggggagga ccgtccatcc ccttcccccg gcccctctca 500 ataaacgtgg ttaagagcaa aaaaaaaaa aaaaaaaaa aaaaaaaaa 550

<210> 408

<211> 104

<212> PRT

<213> Homo sapiens

<400> 408

Met Lys Leu Ala Ala Leu Leu Gly Leu Cys Val Ala Leu Ser Cys 1 5 10 15

Ser Ser Ala Ala Ala Phe Leu Val Gly Ser Ala Lys Pro Val Ala 20 25 30

Gln Pro Val Ala Ala Leu Glu Ser Ala Ala Glu Ala Gly Ala Gly 35 40

Thr Leu Ala Asn Pro Leu Gly Thr Leu Asn Pro Leu Lys Leu 50 55 60

Leu Ser Ser Leu Gly Ile Pro Val Asn His Leu Ile Glu Gly Ser 65 70 75

Gln Lys Cys Val Ala Glu Leu Gly Pro Gln Ala Val Gly Ala Val 80 85 90

Lys Ala Leu Lys Ala Leu Gly Ala Leu Thr Val Phe Gly 95

<210> 409

<211> 2089

<212> DNA

<213> Homo sapiens

<400> 409

tgaaggactt ttccaggacc caaggccaca cactggaagt cttgcagctg 50
aagggaggca ctccttggcc tccgcagccg atcacatgaa ggtggtgcca 100
agtctcctgc tctccgtcct cctggcacag gtgtggctgg tacccggctt 150
ggcccccagt cctcagtcgc cagagacccc agcccctcag aaccaagacca 200
gcagggtagt gcaggctccc agggaggaag aggaagatga gcaggaggcc 250
agcgaggaga aggccggtga ggaagagaaa gcctggctga tggccagcag 300
gcagcagctt gccaaggaga cttcaaactt cggattcagc ctgctgcaaa 350
agatctccat gaggcacgat ggcaacatgg tcttctctcc atttggcatg 400
tccttggcca tgacaggctc acttgcaggc cctgaagccc accaagcccg 500
ccagatcaag agaggctcc acttgcaggc cctgaagccc accaagcccg 500

ggctcctgcc ttccctcttt aagggactca gagagaccct ctcccgcaac 550 ctggaactgg gcctctcaca ggggagtttt gccttcatcc acaaggattt 600 tgatgtcaaa gagactttct tcaatttatc caagaggtat tttgatacag 650 agtgcgtgcc tatgaatttt cgcaatgcct cacaggccaa aaggctcatg 700 aatcattaca ttaacaaaga gactcggggg aaaattccca aactgtttga 750 tgagattaat cctgaaacca aattaattct tgtggattac atcttgttca 800 aagggaaatg gttgacccca tttgaccctg tcttcaccga agtcgacact 850 ttccacctgg acaagtacaa gaccattaag gtgcccatga tgtacggtgc 900 aggcaagttt gcctccacct ttgacaagaa ttttcgttgt catgtcctca 950 aactgcccta ccaaggaaat gccaccatgc tggtggtcct catggagaaa 1000 atgggtgacc acctcgccct tgaagactac ctgaccacag acttggtgga 1050 gacatggctc agaaacatga aaaccagaaa catggaagtt ttctttccga 1100 agttcaagct agatcagaag tatgagatgc atgagctgct taggcagatg 1150 ggaatcagaa gaatcttctc accctttgct gaccttagtg aactctcagc 1200 tactggaaga aatctccaag tatccagggt tttacgaaga acagtgattg 1250 aagttgatga aaggggcact gaggcagtgg caggaatctt gtcagaaatt 1300 catgatctat gaagaaacct ctggaatgct tctgtttctg ggcagggtgg 1400 tgaatccgac tctcctataa ttcaggacat gcataagcac ttcgtgctgt 1450 agtagatgct gaatctgagg tatcaaacac acacaggata ccagcaatgg 1500 atggcagggg agagtgttcc ttttgttctt aactagttta gggtgttctc 1550 aaataaatac agtagtcccc acttatctga gggggataca ttcaaagacc 1600 cccagcagat gcctgaaacg gtggacagtg ctgaacctta tatatattt 1650 ttcctacaca tacataccta tgataaagtt taatttataa attaggcaca 1700 gtaagagatt aacaataata acaacattaa gtaaaatgag ttacttgaac 1750 gcaagcactg caataccata acagtcaaac tqattataqa qaaqqctact 1800 aagtgactca tgggcgagga gcatagacag tgtggagaca ttgggcaagg 1850 ggagaattca catcctgggt gggacagagc aggacgatgc aagattccat 1900 cccactactc agaatggcat gctgcttaag acttttagat tgtttatttc 1950 tggaattttt catttaatgt ttttggacca tggttgacca tggttaactg 2000 agactgcaga aagcaaaacc atggataagg gaggactact acaaaagcat 2050 taaattgata catattttt aaaaaaaaaa aaaaaaaaa 2089

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<211> 444
<212> PRT
<213> Homo sapiens
<400> 410
 Met Lys Val Val Pro Ser Leu Leu Leu Ser Val Leu Leu Ala Gln
                                      10
 Val Trp Leu Val Pro Gly Leu Ala Pro Ser Pro Gln Ser Pro Glu
 Thr Pro Ala Pro Gln Asn Gln Thr Ser Arg Val Val Gln Ala Pro
 Arg Glu Glu Glu Asp Glu Gln Glu Ala Ser Glu Glu Lys Ala
 Gly Glu Glu Lys Ala Trp Leu Met Ala Ser Arg Gln Gln Leu
 Ala Lys Glu Thr Ser Asn Phe Gly Phe Ser Leu Leu Arg Lys Ile
 Ser Met Arg His Asp Gly Asn Met Val Phe Ser Pro Phe Gly Met
Ser Leu Ala Met Thr Gly Leu Met Leu Gly Ala Thr Gly Pro Thr
                                     115
Glu Thr Gln Ile Lys Arg Gly Leu His Leu Gln Ala Leu Lys Pro
                                     130
Thr Lys Pro Gly Leu Leu Pro Ser Leu Phe Lys Gly Leu Arg Glu
                140
Thr Leu Ser Arg Asn Leu Glu Leu Gly Leu Ser Gln Gly Ser Phe
                                     160
Ala Phe Ile His Lys Asp Phe Asp Val Lys Glu Thr Phe Phe Asn
Leu Ser Lys Arg Tyr Phe Asp Thr Glu Cys Val Pro Met Asn Phe
                185
                                     190
Arg Asn Ala Ser Gln Ala Lys Arg Leu Met Asn His Tyr Ile Asn
Lys Glu Thr Arg Gly Lys Ile Pro Lys Leu Phe Asp Glu Ile Asn
Pro Glu Thr Lys Leu Ile Leu Val Asp Tyr Ile Leu Phe Lys Gly
                230
Lys Trp Leu Thr Pro Phe Asp Pro Val Phe Thr Glu Val Asp Thr
                                                        255
Phe His Leu Asp Lys Tyr Lys Thr Ile Lys Val Pro Met Met Tyr
Gly Ala Gly Lys Phe Ala Ser Thr Phe Asp Lys Asn Phe Arg Cys
                275
                                                        285
```

```
His Val Leu Lys Leu Pro Tyr Gln Gly Asn Ala Thr Met Leu Val
                                                          300
Val Leu Met Glu Lys Met Gly Asp His Leu Ala Leu Glu Asp Tyr
Leu Thr Thr Asp Leu Val Glu Thr Trp Leu Arg Asn Met Lys Thr
                 320
                                     325
Arg Asn Met Glu Val Phe Phe Pro Lys Phe Lys Leu Asp Gln Lys
                                     340
Tyr Glu Met His Glu Leu Leu Arg Gln Met Gly Ile Arg Arg Ile
                 350
                                     355
                                                          360
Phe Ser Pro Phe Ala Asp Leu Ser Glu Leu Ser Ala Thr Gly Arg
                                     370
Asn Leu Gln Val Ser Arg Val Leu Arg Arg Thr Val Ile Glu Val
                380
                                     385
Asp Glu Arg Gly Thr Glu Ala Val Ala Gly Ile Leu Ser Glu Ile
                                     400
Thr Ala Tyr Ser Met Pro Pro Val Ile Lys Val Asp Arg Pro Phe
His Phe Met Ile Tyr Glu Glu Thr Ser Gly Met Leu Leu Phe Leu
                425
                                     430
Gly Arg Val Val Asn Pro Thr Leu Leu
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<211> 636

<212> DNA

<400> 411

<213> Homo sapiens

440

cccagacatg aggaggctcc tcctggtcac cagcctggtg gttgtgctgc 100
tgtgggaggc aggtgcagtc ccagcaccca aggtccctat caagatgcaa 150
gtcaaacact ggccctcaga gcaggaccca gagaaggcct ggggcgcccg 200
tgtggtggag cctccggaga aggacgacca gctggtggtg ctgttccctg 250
tccagaagcc gaaactcttg accaccgagg agaagccacg aggtcagggc 300
aggggccca tccttccagg caccaaggcc tggatggaga ccgaggacac 350
cctgggccgt gtcctgagtc ccgagcccga ccatgacagc ctgtaccacc 400
ctccgcctga ggaggaccag ggcgaggaga ggccccggtt gtgggtgatg 450
ccaaatcacc aggtgctcct gggaccggag gaagaccaag accacatcta 500

ccaccecag tagggeteca ggggecatea etgececege cetgteccaa 550 ggcccagget gttgggactg ggaccetece taccetgece cagetagaca 600

ctgggatcag ccactgcagc tccctgagca ctctctacag agacgcggac 50

## aataaacccc agcaggcaaa aaaaaaaa aaaaaa 636

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<210> 412
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<211> 151

<212> PRT

<213> Homo sapiens

<400> 412

Met Arg Arg Leu Leu Val Thr Ser Leu Val Val Val Leu Leu 1 5 10 15

Trp Glu Ala Gly Ala Val Pro Ala Pro Lys Val Pro Ile Lys Met 20 25 30

Gln Val Lys His Trp Pro Ser Glu Gln Asp Pro Glu Lys Ala Trp 35 40 45

Gly Ala Arg Val Val Glu Pro Pro Glu Lys Asp Asp Gln Leu Val
50 55 60

Val Leu Phe Pro Val Gln Lys Pro Lys Leu Leu Thr Thr Glu Glu 65 70 75

Lys Pro Arg Gly Gln Gly Arg Gly Pro Ile Leu Pro Gly Thr Lys 80 85 90

Ala Trp Met Glu Thr Glu Asp Thr Leu Gly Arg Val Leu Ser Pro 95 100 105

Glu Pro Asp His Asp Ser Leu Tyr His Pro Pro Pro Glu Glu Asp 110 115 120

Gln Gly Glu Glu Arg Pro Arg Leu Trp Val Met Pro Asn His Gln 125 130 135

Val Leu Leu Gly Pro Glu Glu Asp Gln Asp His Ile Tyr His Pro 140 145 150

Gln

<210> 413

<211> 1176

<212> DNA

<213> Homo sapiens

<400> 413

agaaagctgc actctgttga gctccagggc gcagtggagg gagggagtga 50
agggagctctc tgtacccaag gaaagtgcag ctgagactca gacaagatta 100
caatgaacca actcagcttc ctgctgtttc tcatagcgac caccagagga 150
tggagtacag atgaggctaa tacttacttc aaggaatgga cctgttcttc 200
gtctccatct ctgcccagaa gctgcaagga aatcaaagac gaatgtccta 250
gtgcatttga tggcctgtat tttctccgca ctgagaatgg tgttatctac 300
cagaccttct gtgacatgac ctctgggggt ggcggctgga ccctggtggc 350
cagcgtgcat gagaatgaca tgcgtggaa gtgcacggtg ggcgatcgct 400

ggtccagtca gcagggcagc aaagcagact acccagaggg ggacggcaac 450 tgggccaact acaacactt tggatctgca gaggcggcca cgagcgatga 500 ctacaagaac cctggctact acgacatcca ggccaaggac ctgggcatct 550 ggcacgtgcc caataagtcc cccatgcagc actggagaaa cagctccctg 600 ctgaggtacc gcacggacac tggcttcctc cagacactgg gacataatct 650 gtttggcatc taccagaaat atccagtgaa atatggagaa ggaaagtgtt 700 ggactgacaa cggcccggtg atccctgtgg tctatgattt tggcgacgcc 750 cagaaaacag catcttatta ctcaccctat ggccagcggg aattcactgc 800 gggatttgtt cagttcaggg tatttaataa cgagagagca gccaacgcct 850 tgtgtgctgg aatgagggtc accggatgta acactgagca tcactgcatt 900 ggtggaggag gatactttcc agaggccagt ccccagcagt gtggagattt 950 ttctggtttt gattggagtg gatatggaac tcatgttggt tacagcagca 1000 gccgtgagat aactgaggca gctgtgcttc tattctatcg ttgagagttt 1050 tgtgggaggg aacccagacc tctcctccca accatgagat cccaaggatg 1100 gagaacaact tacccagtag ctagaatgtt aatggcagaa gagaaaacaa 1150 taaatcatat tgactcaaga aaaaaa 1176

<210> 414

<211> 313

<212> PRT

<213> Homo sapiens

<400> 414

Met Asn Gln Leu Ser Phe Leu Leu Phe Leu Ile Ala Thr Thr Arg
1 5 10 15

Gly Trp Ser Thr Asp Glu Ala Asn Thr Tyr Phe Lys Glu Trp Thr 20 25 30

Cys Ser Ser Ser Pro Ser Leu Pro Arg Ser Cys Lys Glu Ile Lys 35 40 45

Asp Glu Cys Pro Ser Ala Phe Asp Gly Leu Tyr Phe Leu Arg Thr 50 55 60

Glu Asn Gly Val Ile Tyr Gln Thr Phe Cys Asp Met Thr Ser Gly  $65 \ 70 \ 75$ 

Gly Gly Gly Trp Thr Leu Val Ala Ser Val His Glu Asn Asp Met 80 85 90

Arg Gly Lys Cys Thr Val Gly Asp Arg Trp Ser Ser Gln Gln Gly 95 100 105

Ser Lys Ala Asp Tyr Pro Glu Gly Asp Gly Asn Trp Ala Asn Tyr 110 115 120

Asn Thr Phe Gly Ser Ala Glu Ala Ala Thr Ser Asp Asp Tyr Lys

				125					130					135
Asn	Pro	Gly	Tyr	Tyr 140	Asp	Ile	Gln	Ala	Lys 145	Asp	Leu	Gly	Ile	Trp 150
His	Val	Pro	Asn	Lys 155	Ser	Pro	Met	Gln	His 160	Trp	Arg	Asn	Ser	Ser 165
Leu	Leu	Arg	Tyr	Arg 170	Thr	Asp	Thr	Gly	Phe 175	Leu	Gln	Thr	Leu	Gly 180
His	Asn	Leu	Phe	Gly 185	Ile	Tyr	Gln	Lys	Tyr 190	Pro	Val	Lys	Tyr	Gly 195
Glu	Gly	Lys	Cys	Trp 200	Thr	Asp	Asn	Gly	Pro 205	Val	Ile	Pro	Val	Val 210
Tyr	Asp	Phe	Gly	Asp 215	Ala	Gln	Lys	Thr	Ala 220	Ser	Tyr	Tyr	Ser	Pro 225
Tyr	Gly	Gln	Arg	Glu 230	Phe	Thr	Ala	Gly	Phe 235	Val	Gln	Phe	Arg	Val 240
Phe	Asn	Asn	Glu	Arg 245	Ala	Ala	Asn	Ala	Leu 250	Cys	Ala	Gly	Met	Arg 255
Val	Thr	Gly	Cys	Asn 260	Thr	Glu	His	His	Cys 265	Ile	Gly	Gly	Gly	Gly 270
Tyr	Phe	Pro	Glu	Ala 275	Ser	Pro	Gln	Gln	Cys 280	Gly	Asp	Phe	Ser	Gly 285
Phe	Asp	Trp	Ser	Gly 290	Tyr	Gly	Thr	His	Val 295	Gly	Tyr	Ser	Ser	Ser 300
Arg	Glu	Ile	Thr	Glu 305	Ala	Ala	Val	Leu	Leu 310	Phe	Tyr	Arg		

<211> 1281

<212> DNA

<213> Homo sapiens

<400> 415

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ccacaatagt tcagtgacat ctgctgcttc atcagtaaca atcacaacaa 550 ctatgcattc tgaagcaaag aaaggatcaa aatttgatac tgggagcttt 600 gttggtggta ttgtattaac gctgggagtt ttatctattc tttacattgg 650 atgcaaaatg tattactcaa gaagaggcat tcggtatcga accatagatg 700 aacatgatgc catcatttaa ggaaatccat ggaccaagga tggaatacag 750 attgatgctg ccctatcaat taattttggt ttattaatag tttaaaacaa 800 tattctcttt ttgaaaatag tataaacagg ccatgcatat aatgtacagt 850 gtattacgta aatatgtaaa gattcttcaa ggtaacaagg gtttgggttt 900 tgaaataaac atctggatct tatagaccgt tcatacaatg gttttagcaa 950 gttcatagta agacaaacaa gtcctatctt ttttttttgg ctggggtggg 1000 ggcattggtc acatatgacc agtaattgaa agacgtcatc actgaaagac 1050 agaatgccat ctgggcatac aaataagaag tttgtcacag cactcaggat 1100 tttgggtatc ttttgtagct cacataaaga acttcagtgc ttttcagagc 1150 tggatatatc ttaattacta atgccacaca gaaattatac aatcaaacta 1200 gatctgaagc ataatttaag aaaaacatca acattttttg tgctttaaac 1250 tgtagtagtt ggtctagaaa caaaatactc c 1281

<210> 416

<211> 208

<212> PRT

<213> Homo sapiens

<400> 416

Met Gly Leu Gly Ala Arg Gly Ala Trp Ala Ala Leu Leu Gly
1 5 10 15

Thr Leu Gln Val Leu Ala Leu Leu Gly Ala Ala His Glu Ser Ala 20 25 30

Ala Met Ala Ala Ser Ala Asn Ile Glu Asn Ser Gly Leu Pro His  $35 \hspace{1cm} 40 \hspace{1cm} 45$ 

Asn Ser Ser Ala Asn Ser Thr Glu Thr Leu Gln His Val Pro Ser 50 55 60

Asp His Thr Asn Glu Thr Ser Asn Ser Thr Val Lys Pro Pro Thr 65 70 75

Ser Val Ala Ser Asp Ser Ser Asn Thr Thr Val Thr Thr Met Lys 80 85 90

Pro Thr Ala Ala Ser Asn Thr Thr Thr Pro Gly Met Val Ser Thr 95 100 105

Asn Met Thr Ser Thr Thr Leu Lys Ser Thr Pro Lys Thr Thr Ser 110 115 120

Val Ser Gln Asn Thr Ser Gln Ile Ser Thr Ser Thr Met Thr Val

125 130 135 Thr His Asn Ser Ser Val Thr Ser Ala Ala Ser Ser Val Thr Ile 140 Thr Thr Met His Ser Glu Ala Lys Lys Gly Ser Lys Phe Asp Thr Gly Ser Phe Val Gly Gly Ile Val Leu Thr Leu Gly Val Leu 175 Ser Ile Leu Tyr Ile Gly Cys Lys Met Tyr Tyr Ser Arg Arg Gly 185 Ile Arg Tyr Arg Thr Ile Asp Glu His Asp Ala Ile Ile

200

<210> 417 <211> 1728

<212> DNA

<213> Homo sapiens

<400> 417

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<210> 418

<211> 198

<212> PRT

<213> Homo sapiens

<400> 418

Met Ala Thr Leu Trp Gly Gly Leu Leu Arg Leu Gly Ser Leu Leu 1 5 10 15

Ser Leu Ser Cys Leu Ala Leu Ser Val Leu Leu Leu Ala Gln Leu 20 25 30

Ser Asp Ala Ala Lys Asn Phe Glu Asp Val Arg Cys Lys Cys Ile 35 40 40

Cys Pro Pro Tyr Lys Glu Asn Ser Gly His Ile Tyr Asn Lys Asn 50 55 60

Ile Ser Gln Lys Asp Cys Asp Cys Leu His Val Val Glu Pro Met
65 70 75

Pro Val Arg Gly Pro Asp Val Glu Ala Tyr Cys Leu Arg Cys Glu 80 85 90

Cys Lys Tyr Glu Glu Arg Ser Ser Val Thr Ile Lys Val Thr Ile
95 100 100

Ile Ile Tyr Leu Ser Ile Leu Gly Leu Leu Leu Leu Tyr Met Val 110 115 120

Tyr Leu Thr Leu Val Glu Pro Ile Leu Lys Arg Arg Leu Phe Gly 125 130 135

His Ala Gln Leu Ile Gln Ser Asp Asp Asp Ile Gly Asp His Gln  $140 \,$   $145 \,$   $150 \,$ 

Pro Phe Ala Asn Ala His Asp Val Leu Ala Arg Ser Arg 155 160 165

Ala Asn Val Leu Asn Lys Val Glu Tyr Ala Gln Gln Arg Trp Lys 170 175 180

Leu Gln Val Gln Glu Gln Arg Lys Ser Val Phe Asp Arg His Val  $185 \ \ 190 \ \ \ 195$ 

Val Leu Ser

<210> 419

<211> 681

<212> DNA

<213> Homo sapiens

<400> 419

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<210> 420

<211> 128

<212> PRT

<213> Homo sapiens

<400> 420

Met Ala Tyr Ser Thr Val Gln Arg Val Ala Leu Ala Ser Gly Leu  $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$ 

Val Leu Ala Leu Ser Leu Leu Leu Pro Lys Ala Phe Leu Ser Arg 20 25 30

Gly Lys Arg Gln Glu Pro Pro Pro Thr Pro Glu Gly Lys Leu Gly 35 40

Arg Phe Pro Pro Met Met His His His Gln Ala Pro Ser Asp Gly 50 55 60

Gln Thr Pro Gly Ala Arg Phe Gln Arg Ser His Leu Ala Glu Ala 65 70 75

Phe Ala Lys Ala Lys Gly Ser Gly Gly Gly Ala Gly Gly Gly Gly 90

Ser Gly Arg Gly Leu Met Gly Gln Ile Ile Pro Ile Tyr Gly Phe 95 100 105

Gly Ile Phe Leu Tyr Ile Leu Tyr Ile Leu Phe Lys Val Ser Arg 110  $\,$  115  $\,$  120

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<210> 421

<211> 1630

<212> DNA

<213> Homo sapiens

<400> 421

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tcagategga acaactcact tgaaaaaaaag tcaggtgggg gaatgecaaa 1250
aacacagcaa geettttgag aagaatggag agteeettea teteageage 1300
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acactggeee tgggaaccag getgagetga gtggeetcaa acceeegtt 1550
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<211> 394

<212> PRT

<213> Homo sapiens

<400> 422

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Thr Val His Val Gly Asp Ser Ala Leu Met Gly Cys Val Phe Gln 35 40 45

Ser Thr Glu Asp Lys Cys Ile Phe Lys Ile Asp Trp Thr Leu Ser 50 55 60

Pro Gly Glu His Ala Lys Asp Glu Tyr Val Leu Tyr Tyr Tyr Ser 65 70 75

Asn Leu Ser Val Pro Ile Gly Arg Phe Gln Asn Arg Val His Leu 80 85 90

Met Gly Asp Ile Leu Cys Asn Asp Gly Ser Leu Leu Gln Asp 95 100 105

Val Gln Glu Ala Asp Gln Gly Thr Tyr Ile Cys Glu Ile Arg Leu 110 115 120

Lys Gly Glu Ser Gln Val Phe Lys Lys Ala Val Val Leu His Val 125 130 135

Leu Pro Glu Glu Pro Lys Glu Leu Met Val His Val Gly Gly Leu
140 145 150

Ile Gln Met Gly Cys Val Phe Gln Ser Thr Glu Val Lys His Val

155 160 165 Thr Lys Val Glu Trp Ile Phe Ser Gly Arg Arg Ala Lys Glu Glu 170 Ile Val Phe Arg Tyr Tyr His Lys Leu Arg Met Ser Val Glu Tyr 185 Ser Gln Ser Trp Gly His Phe Gln Asn Arg Val Asn Leu Val Gly 200 205 Asp Ile Phe Arg Asn Asp Gly Ser Ile Met Leu Gln Gly Val Arg 215 Glu Ser Asp Gly Gly Asn Tyr Thr Cys Ser Ile His Leu Gly Asn 235 Leu Val Phe Lys Lys Thr Ile Val Leu His Val Ser Pro Glu Glu 250 Pro Arg Thr Leu Val Thr Pro Ala Ala Leu Arg Pro Leu Val Leu 265 Gly Gly Asn Gln Leu Val Ile Ile Val Gly Ile Val Cys Ala Thr 280 Ile Leu Leu Pro Val Leu Ile Leu Ile Val Lys Lys Thr Cys 295 Gly Asn Lys Ser Ser Val Asn Ser Thr Val Leu Val Lys Asn Thr 305 310 315 Lys Lys Thr Asn Pro Glu Ile Lys Glu Lys Pro Cys His Phe Glu Arg Cys Glu Gly Glu Lys His Ile Tyr Ser Pro Ile Ile Val Arg 340 Glu Val Ile Glu Glu Glu Pro Ser Glu Lys Ser Glu Ala Thr

Gln Gln Ala Phe

<210> 423

<211> 963

<212> DNA

<213> Homo sapiens

<400> 423

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Tyr Met Thr Met His Pro Val Trp Pro Ser Leu Arg Ser Asp Arg

Asn Asn Ser Leu Glu Lys Lys Ser Gly Gly Gly Met Pro Lys Thr

385

acatcacctt aaatattaaa actcggaaac cagctctcgt ctccgttggc 250 cctgcatcct cctcctggtg gcgtgtgatg gctttgattc tgctgatcct 300 gtgcgtgggg atggttgtcg ggctggtggc tctggggatt tggtctgtca 350 tgcagcgcaa ttacctacaa gatgagaatg aaaatcgcac aggaactctg 400 caacaattag caaagcgctt ctgtcaatat gtggtaaaac aatcagaact 450 aaagggcact ttcaaaggtc ataaatgcag cccctgtgac acaaactgga 500 gatattatgg agatagctgc tatgggttct tcaggcacaa cttaacatgg 550 gaagagagta agcagtactg cactgacatg aatgctactc tcctgaagat 600 tgacaaccgg aacattgtgg agtacatcaa agccaggact catttaattc 650 gttgggtcgg attatctcgc cagaagtcga atgaggtctg gaagtgggag 700 gatggctcgg ttatctcaga aaatatgttt gagtttttgg aagatggaaa 750 aggaaatatg aattgtgctt attttcataa tgggaaaatg caccctacct 800 tctgtgagaa caaacattat ttaatgtgtg agaggaaggc tggcatgacc 850 aaggtggacc aactacctta atgcaaagag gtggacagga taacacagat 900 aagggcttta ttgtacaata aaagatatgt atgaatgcat cagtagctga 950 aaaaaaaaa aaa 963

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<211> 229

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<400> 424

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Lys Pro Ala Leu Val Ser Val Gly Pro Ala Ser Ser Ser Trp Trp 20 25 30

Arg Val Met Ala Leu Ile Leu Leu Ile Leu Cys Val Gly Met Val 35 40 45

Val Gly Leu Val Ala Leu Gly Ile Trp Ser Val Met Gln Arg Asn
50 55 60

Tyr Leu Gln Asp Glu Asn Glu Asn Arg Thr Gly Thr Leu Gln Gln
65 70 75

Leu Ala Lys Arg Phe Cys Gln Tyr Val Val Lys Gln Ser Glu Leu 80 85 90

Lys Gly Thr Phe Lys Gly His Lys Cys Ser Pro Cys Asp Thr Asn 95 100 105

Trp Arg Tyr Tyr Gly Asp Ser Cys Tyr Gly Phe Phe Arg His Asn 110 115 120

Leu Thr Trp Glu Glu Ser Lys Gln Tyr Cys Thr Asp Met Asn Ala

125 130 135 Thr Leu Leu Lys Ile Asp Asn Arg Asn Ile Val Glu Tyr Ile Lys Ala Arg Thr His Leu Ile Arg Trp Val Gly Leu Ser Arg Gln Lys Ser Asn Glu Val Trp Lys Trp Glu Asp Gly Ser Val Ile Ser Glu 170 175 Asn Met Phe Glu Phe Leu Glu Asp Gly Lys Gly Asn Met Asn Cys Ala Tyr Phe His Asn Gly Lys Met His Pro Thr Phe Cys Glu Asn 200 205 Lys His Tyr Leu Met Cys Glu Arg Lys Ala Gly Met Thr Lys Val 215 Asp Gln Leu Pro <210> 425 <211> 24 <212> DNA <213> Artificial Sequence <220> <223> Synthetic oligonucleotide probe <400> 425 tgcagcccct gtgacacaaa ctgg 24 <210> 426 <211> 26 <212> DNA <213> Artificial Sequence <220> <223> Synthetic oligonucleotide probe <400> 426 ctgagataac cgagccatcc tcccac 26 <210> 427 <211> 49 <212> DNA <213> Artificial Sequence <223> Synthetic oligonucleotide probe <400> 427 gcttcctgac actaaggctg tctgctagtc agaattgcct caaaaagag 49 <210> 428 <211> 21 <212> DNA <213> Artificial Sequence <220> <223> Synthetic oligonucleotide probe

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į.
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i.
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Spars
Spars
<210> 432
in:
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tgctctgttg gctacggctt tagtccctag 30
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<211> 22
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16 H. Heisel, Grand, Grand, and Wilson, W. 1 out. 18 H. ...d. 18 krom kr. 4 H. 1
15 gardle "Grand, "Grand, "Grand" of morall 18 realize coeffic credite credit Facell makes
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      <400> 470
       gggtggaggc tcactgagta ga 22
£ and
      <210> 471
      <211> 28
ı,
411
      <212> DNA
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      <220>
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dens
       caatacaggt aatgaaactc tgcttctt 28
125
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15
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T.
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Georgia
Secretaria
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fisher
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i de la constantina della cons
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İsab
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in a in
                      <210> 478
Thurst County
                      <211> 22
£28
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 cagcccgcgc gggagccgga ccgccgccgg aggagctcgg acggcatgct 150
 gagccccctc ctttgctgaa gcccgagtgc ggagaagccc gggcaaacgc 200
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ttctgcctaa accactgaaa gtggccatgt acaaggagcc atcactgcac 950 gatctcacgg agttctcccg atctggaagc gggaccccaa ccaagagcag 1000 aagtgtctct ggcgtgctga acggaggcaa atccatgagc cacaatgaat 1050 caacgtagcc agtgagggca aaagaagggc tctgtaacag aaccttacct 1100 ccaggtgctg ttgaattctt ctagcagtcc ttcacccaaa agttcaaatt 1150 tgtcagtgac atttaccaaa caaacaggca gagttcacta ttctatctgc 1200 cattagacct tcttatcatc catactaaag c 1231

<210> 495

<211> 245

<212> PRT

<213> Homo Sapien

<400> 495

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Ala Arg Glu Arg Glu Lys Ser Asn Ala Cys Lys Cys Val Ser Ser 20 25 30

Pro Ser Lys Gly Lys Thr Ser Cys Asp Lys Asn Lys Leu Asn Val 35 40

Phe Ser Arg Val Lys Leu Phe Gly Ser Lys Lys Arg Arg Arg 50 55 60

Arg Pro Glu Pro Gln Leu Lys Gly Ile Val Thr Lys Leu Tyr Ser 65 70 75

Arg Gln Gly Tyr His Leu Gln Leu Gln Ala Asp Gly Thr Ile Asp 80 85 90

Gly Thr Lys Asp Glu Asp Ser Thr Tyr Thr Leu Phe Asn Leu Ile 95 100 105

Pro Val Gly Leu Arg Val Val Ala Ile Gln Gly Val Gln Thr Lys 110 115 120

Leu Tyr Leu Ala Met Asn Ser Glu Gly Tyr Leu Tyr Thr Ser Glu 125 130 135

Leu Phe Thr Pro Glu Cys Lys Phe Lys Glu Ser Val Phe Glu Asn 140 145

Tyr Tyr Val Thr Tyr Ser Ser Met Ile Tyr Arg Gln Gln Gln Ser 155 160 165

Gly Arg Gly Trp Tyr Leu Gly Leu Asn Lys Glu Gly Glu Ile Met 170 175 180

Lys Gly Asn His Val Lys Lys Asn Lys Pro Ala Ala His Phe Leu 185 190

Pro Lys Pro Leu Lys Val Ala Met Tyr Lys Glu Pro Ser Leu His 200 205 210

Asp Leu Thr Glu Phe Ser Arg Ser Gly Ser Gly Thr Pro Thr Lys

215 220 225

Ser Arg Ser Val Ser Gly Val Leu Asn Gly Gly Lys Ser Met Ser 230 235 240

His Asn Glu Ser Thr 245

<210> 496

<211> 1471

<212> DNA

<213> Homo Sapien

<400> 496

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<210> 497

<211> 225

<212> PRT

<213> Homo Sapien

<400> 497

Met Ala Ala Leu Ala Ser Ser Leu Ile Arg Gln Lys Arg Glu Val

Arg Glu Pro Gly Gly Ser Arg Pro Val Ser Ala Gln Arg Arg Val

Cys Pro Arg Gly Thr Lys Ser Leu Cys Gln Lys Gln Leu Leu Ile

Leu Leu Ser Lys Val Arg Leu Cys Gly Gly Arg Pro Ala Arg Pro 50

Asp Arg Gly Pro Glu Pro Gln Leu Lys Gly Ile Val Thr Lys Leu

Phe Cys Arg Gln Gly Phe Tyr Leu Gln Ala Asn Pro Asp Gly Ser

Ile Gln Gly Thr Pro Glu Asp Thr Ser Ser Phe Thr His Phe Asn

Leu Ile Pro Val Gly Leu Arg Val Val Thr Ile Gln Ser Ala Lys 115

Leu Gly His Tyr Met Ala Met Asn Ala Glu Gly Leu Leu Tyr Ser

Ser Pro His Phe Thr Ala Glu Cys Arg Phe Lys Glu Cys Val Phe

Glu Asn Tyr Tyr Val Leu Tyr Ala Ser Ala Leu Tyr Arg Gln Arg 160

Arg Ser Gly Arg Ala Trp Tyr Leu Gly Leu Asp Lys Glu Gly Gln 175

Val Met Lys Gly Asn Arg Val Lys Lys Thr Lys Ala Ala Ala His 185

Phe Leu Pro Lys Leu Leu Glu Val Ala Met Tyr Gln Glu Pro Ser 205

Leu His Ser Val Pro Glu Ala Ser Pro Ser Ser Pro Pro Ala Pro 215 225

<210> 498

<211> 744

<212> DNA <213> Homo Sapien

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<210> 499 <211> 247

<212> PRT

<213> Homo Sapien

<400> 499

Met Ala Ala Ile Ala Ser Gly Leu Ile Arg Gln Lys Arg Gln 1 5 10

Ala Arg Glu Gln His Trp Asp Arg Pro Ser Ala Ser Arg Arg Arg 20 25 30

Ser Ser Pro Ser Lys Asn Arg Gly Leu Cys Asn Gly Asn Leu Val

Asp Ile Phe Ser Lys Val Arg Ile Phe Gly Leu Lys Lys Arg Arg 50 55

Leu Arg Arg Gln Asp Pro Gln Leu Lys Gly Ile Val Thr Arg Leu 65 70 75

Tyr Cys Arg Gln Gly Tyr Tyr Leu Gln Met His Pro Asp Gly Ala 80 85 90

Leu Asp Gly Thr Lys Asp Asp Ser Thr Asn Ser Thr Leu Phe Asn 95 100 105

Leu Ile Pro Val Gly Leu Arg Val Val Ala Ile Gln Gly Val Lys 110 115 120

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Thr Gly Leu Tyr Ile Ala Met Asn Gly Glu Gly Tyr Leu Tyr Pro
Ser Glu Leu Phe Thr Pro Glu Cys Lys Phe Lys Glu Ser Val Phe
Glu Asn Tyr Tyr Val Ile Tyr Ser Ser Met Leu Tyr Arg Gln Gln
                155
                                     160
Glu Ser Gly Arg Ala Trp Phe Leu Gly Leu Asn Lys Glu Gly Gln
                170
Ala Met Lys Gly Asn Arg Val Lys Lys Thr Lys Pro Ala Ala His
                185
Phe Leu Pro Lys Pro Leu Glu Val Ala Met Tyr Arg Glu Pro Ser
                200
                                                         210
Leu His Asp Val Gly Glu Thr Val Pro Lys Pro Gly Val Thr Pro
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                                                         225
Ser Lys Ser Thr Ser Ala Ser Ala Ile Met Asn Gly Gly Lys Pro
Val Asn Lys Ser Lys Thr Thr
                245
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<210> 500 <211> 2906 <212> DNA <213> Homo Sapien

<400> 500

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gtgatcagtc tgaaatacaa ctgtttgaat tccagaagga ccaacaccag 800 ataaattatg aatgttgaac aagatgacct tacatccaca gcagataatg 850 ataggtccta ggtttaacag ggccctattt gaccccctgc ttgtggtgct 900 gctggctctt caacttcttg tggtggctgg tctggtgcgg gctcagacct 950 gcccttctgt gtgctcctgc agcaaccagt tcagcaaggt gatttgtgtt 1000 cggaaaaacc tgcgtgaggt tccggatggc atctccacca acacacggct 1050 gctgaacctc catgagaacc aaatccagat catcaaagtg aacagcttca 1100 agcacttgag gcacttggaa atcctacagt tgagtaggaa ccatatcaga 1150 accattgaaa ttggggcttt caatggtctg gcgaacctca acactctgga 1200 actetttgac aategtetta etaceatece gaatggaget tttgtataet 1250 tgtctaaact gaaggagctc tggttgcgaa acaaccccat tgaaagcatc 1300 ccttcttatg cttttaacag aattccttct ttgcgccgac tagacttagg 1350 ggaattgaaa agactttcat acatctcaga aggtgccttt gaaggtctgt 1400 ccaacttgag gtatttgaac cttgccatgt gcaaccttcg ggaaatccct 1450 aacctcacac cgctcataaa actagatgag ctggatcttt ctgggaatca 1500 tttatctgcc atcaggcctg gctctttcca gggtttgatg caccttcaaa 1550 aactgtggat gatacagtcc cagattcaag tgattgaacg gaatgccttt 1600 gacaaccttc agtcactagt ggagatcaac ctggcacaca ataatctaac 1650 attactgcct catgacctct tcactccctt gcatcatcta qaqcqqatac 1700 atttacatca caaccettgg aactgtaact gtgacatact gtggctcagc 1750 tggtggataa aagacatggc cccctcgaac acagcttgtt gtgcccggtg 1800 taacactcct cccaatctaa aggggaggta cattggagag ctcgaccaga 1850 attacttcac atgctatgct ccggtgattg tggagcccc tgcagacctc 1900 aatgtcactg aaggcatggc agctgagctg aaatgtcggg cctccacatc 1950 cctgacatct gtatcttgga ttactccaaa tggaacagtc atgacacatg 2000 gggcgtacaa agtgcggata gctgtgctca gtgatggtac gttaaatttc 2050 acaaatgtaa ctgtgcaaga tacaggcatg tacacatgta tggtgagtaa 2100 ttccgttggg aatactactg cttcagccac cctgaatgtt actgcagcaa 2150 ccactactcc tttctcttac ttttcaaccg tcacagtaga gactatggaa 2200 ccgtctcagg atgaggcacg gaccacagat aacaatgtgg gtcccactcc 2250 agtggtcgac tgggagacca ccaatgtgac cacctctctc acaccacaga 2300 gcacaaggtc gacagagaaa accttcacca tcccagtgac tgatataaac 2350

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<210> 501 <211> 640 <212> PRT

<213> Homo Sapien

<400> 501

Met Leu Asn Lys Met Thr Leu His Pro Gln Gln Ile Met Ile Gly
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Pro Arg Phe Asn Arg Ala Leu Phe Asp Pro Leu Leu Val Val Leu

Leu Ala Leu Gl<br/>n Leu Leu Val Val Ala Gly Leu Val Arg Ala Gl<br/>n \$35\$ 40 45

Thr Cys Pro Ser Val Cys Ser Cys Ser Asn Gln Phe Ser Lys Val
50 55 60

Ile Cys Val Arg Lys Asn Leu Arg Glu Val Pro Asp Gly Ile Ser 65 70 75

Thr Asn Thr Arg Leu Leu Asn Leu His Glu Asn Gln Ile Gln Ile 80 85 90

Ile Lys Val Asn Ser Phe Lys His Leu Arg His Leu Glu Ile Leu 95 100 105

Gln Leu Ser Arg Asn His Ile Arg Thr Ile Glu Ile Gly Ala Phe 110 115 120

Asn Gly Leu Ala Asn Leu Asn Thr Leu Glu Leu Phe Asp Asn Arg 125 130 135

Leu Thr Thr Ile Pro Asn Gly Ala Phe Val Tyr Leu Ser Lys Leu 140 145 150

Lys Glu Leu Trp Leu Arg Asn Asn Pro Ile Glu Ser Ile Pro Ser 155 160 165

Tyr Ala Phe Asn Arg Ile Pro Ser Leu Arg Arg Leu Asp Leu Gly 170 175 Glu Leu Lys Arg Leu Ser Tyr Ile Ser Glu Gly Ala Phe Glu Gly Leu Ser Asn Leu Arg Tyr Leu Asn Leu Ala Met Cys Asn Leu Arg 200 205 Glu Ile Pro Asn Leu Thr Pro Leu Ile Lys Leu Asp Glu Leu Asp Leu Ser Gly Asn His Leu Ser Ala Ile Arg Pro Gly Ser Phe Gln 230 Gly Leu Met His Leu Gln Lys Leu Trp Met Ile Gln Ser Gln Ile Gln Val Ile Glu Arg Asn Ala Phe Asp Asn Leu Gln Ser Leu Val 260 265 270 Glu Ile Asn Leu Ala His Asn Asn Leu Thr Leu Leu Pro His Asp Leu Phe Thr Pro Leu His His Leu Glu Arg Ile His Leu His His Asn Pro Trp Asn Cys Asn Cys Asp Ile Leu Trp Leu Ser Trp Trp 305 310 315 Ile Lys Asp Met Ala Pro Ser Asn Thr Ala Cys Cys Ala Arg Cys Asn Thr Pro Pro Asn Leu Lys Gly Arg Tyr Ile Gly Glu Leu Asp 335 Gln Asn Tyr Phe Thr Cys Tyr Ala Pro Val Ile Val Glu Pro Pro 350 355 Ala Asp Leu Asn Val Thr Glu Gly Met Ala Ala Glu Leu Lys Cys Arg Ala Ser Thr Ser Leu Thr Ser Val Ser Trp Ile Thr Pro Asn 380 Gly Thr Val Met Thr His Gly Ala Tyr Lys Val Arg Ile Ala Val 400 Leu Ser Asp Gly Thr Leu Asn Phe Thr Asn Val Thr Val Gln Asp 410 415 Thr Gly Met Tyr Thr Cys Met Val Ser Asn Ser Val Gly Asn Thr Thr Ala Ser Ala Thr Leu Asn Val Thr Ala Ala Thr Thr Thr Pro 445 450 Phe Ser Tyr Phe Ser Thr Val Thr Val Glu Thr Met Glu Pro Ser Gln Asp Glu Ala Arg Thr Thr Asp Asn Asn Val Gly Pro Thr Pro 475

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Val Val Asp Trp Glu Thr Thr Asn Val Thr Thr Ser Leu Thr Pro
                 485
                                                         495
Gln Ser Thr Arg Ser Thr Glu Lys Thr Phe Thr Ile Pro Val Thr
                500
                                                         510
Asp Ile Asn Ser Gly Ile Pro Gly Ile Asp Glu Val Met Lys Thr
                515
                                     520
Thr Lys Ile Ile Gly Cys Phe Val Ala Ile Thr Leu Met Ala
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Ala Val Met Leu Val Ile Phe Tyr Lys Met Arg Lys Gln His His
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Arg Gln Asn His His Ala Pro Thr Arg Thr Val Glu Ile Ile Asn
                560
Val Asp Asp Glu Ile Thr Gly Asp Thr Pro Met Glu Ser His Leu
                575
                                     580
Pro Met Pro Ala Ile Glu His Glu His Leu Asn His Tyr Asn Ser
Tyr Lys Ser Pro Phe Asn His Thr Thr Thr Val Asn Thr Ile Asn
                605
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Ser Ile His Ser Ser Val His Glu Pro Leu Leu Ile Arg Met Asn
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Ser Lys Asp Asn Val Gln Glu Thr Gln Ile
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<210> 502

<211> 2458

<212> DNA

<213> Homo Sapien

<400> 502

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<210> 503

<211> 373

<212> PRT

<213> Homo Sapien

<400> 503

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Thr Leu Gly Thr His Thr Glu Ile Lys Arg Val Ala Glu Glu Lys 20 25 30

Val Thr Leu Pro Cys His His Gln Leu Gly Leu Pro Glu Lys Asp 35 40 45

Thr Leu Asp Ile Glu Trp Leu Leu Thr Asp Asn Glu Gly Asn Gln 50 55 60

Lys Val Val Ile Thr Tyr Ser Ser Arg His Val Tyr Asn Asn Leu 65 70 75

Thr Glu Glu Gln Lys Gly Arg Val Ala Phe Ala Ser Asn Phe Leu 80 85 90

Ala Gly Asp Ala Ser Leu Gln Ile Glu Pro Leu Lys Pro Ser Asp 95 100 105

Glu Gly Arg Tyr Thr Cys Lys Val Lys Asn Ser Gly Arg Tyr Val 110 115 120

Trp Ser His Val Ile Leu Lys Val Leu Val Arg Pro Ser Lys Pro 125 130 135

Lys Cys Glu Leu Glu Gly Glu Leu Thr Glu Gly Ser Asp Leu Thr 140 145 150

Leu Gln Cys Glu Ser Ser Ser Gly Thr Glu Pro Ile Val Tyr Tyr 155 160 165

Trp Gln Arg Ile Arg Glu Lys Glu Gly Glu Asp Glu Arg Leu Pro 170 175 180

Pro Lys Ser Arg Ile Asp Tyr Asn His Pro Gly Arg Val Leu Leu 185 190 195

Gln Asn Leu Thr Met Ser Tyr Ser Gly Leu Tyr Gln Cys Thr Ala 200 205 210

Gly Asn Glu Ala Gly Lys Glu Ser Cys Val Val Arg Val Thr Val 215 220 225

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Gln Tyr Val Gln Ser Ile Gly Met Val Ala Gly Ala Val Thr Gly
Ile Val Ala Gly Ala Leu Leu Ile Phe Leu Leu Val Trp Leu Leu
Ile Arg Arg Lys Asp Lys Glu Arg Tyr Glu Glu Glu Glu Arg Pro
                260
                                     265
Asn Glu Ile Arg Glu Asp Ala Glu Ala Pro Lys Ala Arg Leu Val
                                                         285
Lys Pro Ser Ser Ser Ser Gly Ser Arg Ser Ser Arg Ser Gly
                290
                                                         300
Ser Ser Ser Thr Arg Ser Thr Ala Asn Ser Ala Ser Arg Ser Gln
                305
Arg Thr Leu Ser Thr Asp Ala Ala Pro Gln Pro Gly Leu Ala Thr
                320
                                    325
                                                         330
Gln Ala Tyr Ser Leu Val Gly Pro Glu Val Arg Gly Ser Glu Pro
Lys Lys Val His His Ala Asn Leu Thr Lys Ala Glu Thr Thr Pro
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Ser Met Ile Pro Ser Gln Ser Arg Ala Phe Gln Thr Val
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<210> 504

<211> 3060

<212> DNA

<213> Homo Sapien

<400> 504

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<210> 505

<211> 352

<212> PRT

<213> Homo Sapien

<400> 505

Met Ala Leu Leu Cys Phe Val Leu Leu Cys Gly Val Val Asp 1 5 10 15

Phe Ala Arg Ser Leu Ser Ile Thr Thr Pro Glu Glu Met Ile Glu 20 25 30

Lys Ala Lys Gly Glu Thr Ala Tyr Leu Pro Cys Lys Phe Thr Leu 35 40 45

Ser Pro Glu Asp Gln Gly Pro Leu Asp Ile Glu Trp Leu Ile Ser 50 55 60

Pro Ala Asp Asn Gln Lys Val Asp Gln Val Ile Ile Leu Tyr Ser 65 70 75

Gly Asp Lys Ile Tyr Asp Asp Tyr Tyr Pro Asp Leu Lys Gly Arg 80 85 90

Val His Phe Thr Ser Asn Asp Leu Lys Ser Gly Asp Ala Ser Ile 95 100 105

Asn Val Thr Asn Leu Gln Leu Ser Asp Ile Gly Thr Tyr Gln Cys 110 115

Lys Val Lys Lys Ala Pro Gly Val Ala Asn Lys Lys Ile His Leu

125 130 135 Val Val Leu Val Lys Pro Ser Gly Ala Arg Cys Tyr Val Asp Gly Ser Glu Glu Ile Gly Ser Asp Phe Lys Ile Lys Cys Glu Pro Lys 155 160 Glu Gly Ser Leu Pro Leu Gln Tyr Glu Trp Gln Lys Leu Ser Asp 170 175 Ser Gln Lys Met Pro Thr Ser Trp Leu Ala Glu Met Thr Ser Ser Val Ile Ser Val Lys Asn Ala Ser Ser Glu Tyr Ser Gly Thr Tyr 200 205 210 Ser Cys Thr Val Arg Asn Arg Val Gly Ser Asp Gln Cys Leu Leu 215 Arg Leu Asn Val Val Pro Pro Ser Asn Lys Ala Gly Leu Ile Ala 230 235 240 Gly Ala Ile Ile Gly Thr Leu Leu Ala Leu Ala Leu Ile Gly Leu 250 Ile Ile Phe Cys Cys Arg Lys Lys Arg Arg Glu Glu Lys Tyr Glu 260 265 Lys Glu Val His His Asp Ile Arg Glu Asp Val Pro Pro Lys 275 285 280 Ser Arg Thr Ser Thr Ala Arg Ser Tyr Ile Gly Ser Asn His Ser 290 295 Ser Leu Gly Ser Met Ser Pro Ser Asn Met Glu Gly Tyr Ser Lys 305 Thr Gln Tyr Asn Gln Val Pro Ser Glu Asp Phe Glu Arg Thr Pro 320 325 Gln Ser Pro Thr Leu Pro Pro Ala Lys Phe Lys Tyr Pro Tyr Lys 335 Thr Asp Gly Ile Thr Val Val 350

<210> 506

<211> 1705

<212> DNA

<213> Homo Sapien

<400> 506

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ccagctgcct ccaggcagcc agccctcaag catcacttac aggaccagag 150
ggacaagaca tgactgtgat gaggagctgc tttcgccaat ttaacaccaa 200
...
gaagaattga ggctgcttgg gaggaaggcc aggaggaaca cgagactgag 250

agatgaattt tcaacagagg ctgcaaagcc tgtggacttt agccagaccc 300 ttctgccctc ctttgctggc gacagcctct caaatgcaga tggttgtgct 350 cccttgcctg ggttttaccc tgcttctctg gagccaggta tcaggggccc 400 agggccaaga attccacttt gggccctgcc aagtgaaggg ggttgttccc 450 cagaaactgt gggaagcctt ctgggctgtg aaagacacta tgcaagctca 500 ggataacatc acgagtgccc ggctgctgca gcaggaggtt ctgcagaacg 550 tctcggatgc tgagagctgt taccttgtcc acaccctgct ggagttctac 600 ttgaaaactg ttttcaaaaa ccaccacaat agaacagttg aagtcaggac 650 tctgaagtca ttctctactc tggccaacaa ctttgttctc atcgtgtcac 700 aactgcaacc cagtcaagaa aatgagatgt tttccatcag agacagtgca 750 cacaggcggt ttctgctatt ccggagagca ttcaaacagt tggacgtaga 800 agcagetetg accaaageee ttggggaagt ggacattett etgacetgga 850 tgcagaaatt ctacaagctc tgaatgtcta gaccaggacc tccctccccc 900 tggcactggt ttgttccctg tgtcatttca aacagtctcc cttcctatgc 950 tgttcactgg acacttcacg cccttggcca tgggtcccat tcttggccca 1000 ggattattgt caaagaagtc attctttaag cagcgccagt gacagtcagg 1050 gaaggtgcct ctggatgctg tgaagagtct acagagaaga ttcttgtatt 1100 tattacaact ctatttaatt aatgtcagta tttcaactga agttctattt 1150 atttgtgaga ctgtaagtta catgaaggca gcagaatatt gtgccccatg 1200 cttctttacc cctcacaatc cttgccacag tgtggggcag tggatgggtg 1250 cttagtaagt acttaataaa ctgtggtgct ttttttggcc tgtctttgga 1300 ttgttaaaaa acagagaggg atgcttggat gtaaaactga acttcagagc 1350 atgaaaatca cactgtcttc tgatatctgc agggacagag cattggggtg 1400 ggggtaaggt gcatctgttt gaaaagtaaa cgataaaatg tggattaaag 1450 tegecagete acceeateat ecettteeet tggtgeeete ettttttt 1550 tatectagte attetteect aatetteeac ttgagtgtea agetgaeett 1600 gctgatggtg acattgcacc tggatgtact atccaatctg tgatgacatt 1650 aaaaa 1705

<sup>&</sup>lt;210> 507

<sup>&</sup>lt;211> 206

<sup>&</sup>lt;212> PRT

## <213> Homo Sapien

<400> 507 Met Asn Phe Gln Gln Arg Leu Gln Ser Leu Trp Thr Leu Ala Arg Pro Phe Cys Pro Pro Leu Leu Ala Thr Ala Ser Gln Met Gln Met 20 Val Val Leu Pro Cys Leu Gly Phe Thr Leu Leu Leu Trp Ser Gln Val Ser Gly Ala Gln Gly Gln Glu Phe His Phe Gly Pro Cys Gln Val Lys Gly Val Val Pro Gln Lys Leu Trp Glu Ala Phe Trp Ala Val Lys Asp Thr Met Gln Ala Gln Asp Asn Ile Thr Ser Ala Arg Leu Leu Gln Gln Glu Val Leu Gln Asn Val Ser Asp Ala Glu Ser 100 Cys Tyr Leu Val His Thr Leu Leu Glu Phe Tyr Leu Lys Thr Val Phe Lys Asn His His Asn Arg Thr Val Glu Val Arg Thr Leu Lys 125 130 Ser Phe Ser Thr Leu Ala Asn Asn Phe Val Leu Ile Val Ser Gln 145 Leu Gln Pro Ser Gln Glu Asn Glu Met Phe Ser Ile Arg Asp Ser 155 160 Ala His Arg Arg Phe Leu Leu Phe Arg Arg Ala Phe Lys Gln Leu 170 175 Asp Val Glu Ala Ala Leu Thr Lys Ala Leu Gly Glu Val Asp Ile

Leu Leu Thr Trp Met Gln Lys Phe Tyr Lys Leu 200 205

<210> 508

<211> 924

<212> DNA

<213> Homo Sapien

<400> 508

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tcaaggatca tcaggagcca aaccccaaaa tcttgagaaa aatcagcagc 350 attgccaact ctttcctcta catgcagaaa actctgcggc aatgtcagga 400 acagaggcag tgtcactgca ggcaggaagc caccaatgcc accagagtca 450 tccatgacaa ctatgatcag ctggaggtcc acgctgctgc cattaaatcc 500 ctgggagagc tcgacgtct tctagcctgg attaataaga atcatgaagt 550 aatgttctca gcttgatgac aaggaacctg tatagtgatc cagggatgaa 600 cacccctgt gcggtttact gtgggagaca gcccaccttg aaggggaagg 650 agatgggaa ggcccttgc agctgaaagt cccactggct ggcctcaggc 700 tgtcttattc cgcttgaaaa taggcaaaaa gtctactgtg gtatttgtaa 750 taaactctat ctgctgaaag ggcctgcagg ccatcctggg agtaaagggc 800 tgccttccca tctaatttat tgtaaagtca tatagtccat gtctgtgatg 850 tgagccaagt gatatcctgt agtaccatt gtactgagt gttttctga 900 ataaattcca tattttacct atga 924

<210> 509 <211> 177 <212> PRT

<213> Homo Sapien

<400> 509

Met Lys Leu Gln Cys Val Ser Leu Trp Leu Leu Gly Thr Ile Leu  $1 \hspace{1.5cm} 5 \hspace{1.5cm} 10 \hspace{1.5cm} 15$ 

Ile Leu Cys Ser Val Asp Asn His Gly Leu Arg Arg Cys Leu Ile  $20 \hspace{1.5cm} 25 \hspace{1.5cm} 30$ 

Ser Thr Asp Met His His Ile Glu Glu Ser Phe Gln Glu Ile Lys 35 40 45

Arg Ala Ile Gln Ala Lys Asp Thr Phe Pro Asn Val Thr Ile Leu
50 55 60

Ser Thr Leu Glu Thr Leu Gln Ile Ile Lys Pro Leu Asp Val Cys  $\phantom{-}65\phantom{+}70\phantom{+}70\phantom{+}75\phantom{+}$ 

Cys Val Thr Lys Asn Leu Leu Ala Phe Tyr Val Asp Arg Val Phe 80 85 90

Lys Asp His Gln Glu Pro Asn Pro Lys Ile Leu Arg Lys Ile Ser 95 100 105

Ser Ile Ala Asn Ser Phe Leu Tyr Met Gln Lys Thr Leu Arg Gln 110 115 120

Cys Gln Glu Gln Arg Gln Cys His Cys Arg Gln Glu Ala Thr Asn 125 130 135

Ala Thr Arg Val Ile His Asp Asn Tyr Asp Gln Leu Glu Val His 140 145 150

Ala Ala Ala Ile Lys Ser Leu Gly Glu Leu Asp Val Phe Leu Ala

155 160 165

Trp Ile Asn Lys Asn His Glu Val Met Phe Ser Ala 170 175

<210> 510

<211> 996

<212> DNA

<213> Homo Sapien

<400> 510

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<210> 511

<211> 251

<212> PRT

<213> Homo Sapien

<400> 511

Met Leu Gly Ala Arg Leu Arg Leu Trp Val Cys Ala Leu Cys Ser 1 5 10

Val Cys Ser Met Ser Val Leu Arg Ala Tyr Pro Asn Ala Ser Pro 20 25 30

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Leu Leu Gly Ser Ser Trp Gly Gly Leu Ile His Leu Tyr Thr Ala
Thr Ala Arg Asn Ser Tyr His Leu Gln Ile His Lys Asn Gly His
Val Asp Gly Ala Pro His Gln Thr Ile Tyr Ser Ala Leu Met Ile
                 65
                                      70
Arg Ser Glu Asp Ala Gly Phe Val Val Ile Thr Gly Val Met Ser
Arg Arg Tyr Leu Cys Met Asp Phe Arg Gly Asn Ile Phe Gly Ser
His Tyr Phe Asp Pro Glu Asn Cys Arg Phe Gln His Gln Thr Leu
                110
                                     115
Glu Asn Gly Tyr Asp Val Tyr His Ser Pro Gln Tyr His Phe Leu
                125
                                    130
                                                         135
Val Ser Leu Gly Arg Ala Lys Arg Ala Phe Leu Pro Gly Met Asn
                140
Pro Pro Pro Tyr Ser Gln Phe Leu Ser Arg Arg Asn Glu Ile Pro
                155
                                     160
Leu Ile His Phe Asn Thr Pro Ile Pro Arg Arg His Thr Arg Ser
                170
                                    175
                                                         180
Ala Glu Asp Asp Ser Glu Arg Asp Pro Leu Asn Val Leu Lys Pro
                                    190
Arg Ala Arg Met Thr Pro Ala Pro Ala Ser Cys Ser Gln Glu Leu
                200
Pro Ser Ala Glu Asp Asn Ser Pro Met Ala Ser Asp Pro Leu Gly
                                    220
                                                         225
Val Val Arg Gly Gly Arg Val Asn Thr His Ala Gly Gly Thr Gly
                                                         240
Pro Glu Gly Cys Arg Pro Phe Ala Lys Phe Ile
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<210> 512

<211> 2015

<212> DNA

<213> Homo Sapien

245

<400> 512

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ggggagccaa gagaatttcc cctgcaagag agaccaggag tttcacaaaa 350 acateteeca actteatggt getgategee aceteegtgg agacateage 400 cgccagtggc agccccgagg gagctggaat gaccacagtt cagaccatca 450 caggcagtga tcccgaggaa gccatctttg acaccctttg caccgatgac 500 agctctgaag aggcaaagac actcacaatg gacatattga cattggctca 550 cacctccaca gaagctaagg geetgteete agagageagt geetetteeg 600 acggcccca tccagtcatc accccgtcac gggcctcaga gagcagcgcc 650 tetteegacg geocecatee agteateace cegteacggg ceteagagag 700 cagegeetet teegaeggee eecateeagt cateaeeeeg teatggteee 750 cgggatctga tgtcactctc ctcgctgaag ccctggtgac tgtcacaaac 800 atcgaggtta ttaattgcag catcacagaa atagaaacaa caacttccag 850 catccctggg gcctcagaca tagatctcat ccccacggaa ggggtgaagg 900 cetegtecae etcegateca ceagetetge etgactecae tgaageaaaa 950 ccacacatca ctgaggtcac agectctgcc gagaccctgt ccacagccgg 1000 caccacagag tcagctgcac ctcatgccac ggttgggacc ccactcccca 1050 ctaacagcgc cacagaaaga gaagtgacag cacccggggc cacgaccctc 1100 agtggagctc tggtcacagt tagcaggaat cccctggaag aaacctcagc 1150 cctctctqtt gagacaccaa gttacgtcaa agtctcagga gcagctccgg 1200 tctccataga ggctgggtca gcagtgggca aaacaacttc ctttgctggg 1250 agetetgett cetectacag ceceteggaa geegeeetea agaactteae 1300 cccttcagag acacegacca tggacatcgc aaccaagggg cccttcccca 1350 ccagcaggga ccctcttcct tctgtccctc cgactacaac caacagcagc 1400 cgagggacga acagcacctt agccaagatc acaacctcag cgaagaccac 1450 gatgaageee caacageeae geeeaegaet geeeggaega ggeegaeeae 1500 agacgtgagt gcaggtgaaa atggaggttt cctcctcctg cggctgagtg 1550 tggcttcccc ggaagacctc actgacccca gagtggcaga aaggctgatg 1600 cagcagetee accgggaact ceaegeeeae gegeeteact teeaggtete 1650 cttactgcgt gtcaggagag gctaacggac atcagctgca gccaggcatg 1700 tcccgtatgc caaaagaggg tgctgcccct agcctgggcc cccaccgaca 1750 gactgcagct gcgttactgt gctgagaggt acccagaagg ttcccatgaa 1800 gggcagcatg tccaagcccc taaccccaga tgtggcaaca ggaccctcgc 1850 tcacatccac cggagtgtat gtatggggag gggcttcacc tgttcccaga 1900

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<210> 513

<211> 482

<212> PRT

<213> Homo Sapien

<400> 513

Met Gly Cys Leu Trp Gly Leu Ala Leu Pro Leu Phe Phe Cys
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Trp Glu Val Gly Val Ser Gly Ser Ser Ala Gly Pro Ser Thr Arg 20 25 30

Arg Ala Asp Thr Ala Met Thr Thr Asp Asp Thr Glu Val Pro Ala 35 40 45

Met Thr Leu Ala Pro Gly His Ala Ala Leu Glu Thr Gln Thr Leu 50 55 60

Ser Ala Glu Thr Ser Ser Arg Ala Ser Thr Pro Ala Gly Pro Ile  $\phantom{0}65\phantom{0}70\phantom{0}75$ 

Glu Thr Arg Ser Phe Thr Lys Thr Ser Pro Asn Phe Met Val Leu 95 100 105

Ile Ala Thr Ser Val Glu Thr Ser Ala Ala Ser Gly Ser Pro Glu
110 115 120

Gly Ala Gly Met Thr Thr Val Gln Thr Ile Thr Gly Ser Asp Pro 125 130 135

Glu Glu Ala Ile Phe Asp Thr Leu Cys Thr Asp Asp Ser Ser Glu 140 145 150

Glu Ala Lys Thr Leu Thr Met Asp Ile Leu Thr Leu Ala His Thr
155 160 165

Ser Thr Glu Ala Lys Gly Leu Ser Ser Glu Ser Ser Ala Ser Ser 170 175 180

Asp Gly Pro His Pro Val Ile Thr Pro Ser Arg Ala Ser Glu Ser 185 190 195

Ser Ala Ser Ser Asp Gly Pro His Pro Val Ile Thr Pro Ser Arg 200 205 210

Ala Ser Glu Ser Ser Ala Ser Ser Asp Gly Pro His Pro Val Ile

Thr Pro Ser Trp Ser Pro Gly Ser Asp Val Thr Leu Leu Ala Glu 230 235 240

Ala Leu Val Thr Val Thr Asn Ile Glu Val Ile Asn Cys Ser Ile  $245 \\ 250 \\ 250$ 

Thr Glu Ile Glu Thr Thr Ser Ser Ile Pro Gly Ala Ser Asp 260 Ile Asp Leu Ile Pro Thr Glu Gly Val Lys Ala Ser Ser Thr Ser Asp Pro Pro Ala Leu Pro Asp Ser Thr Glu Ala Lys Pro His Ile 295 Thr Glu Val Thr Ala Ser Ala Glu Thr Leu Ser Thr Ala Gly Thr Thr Glu Ser Ala Ala Pro His Ala Thr Val Gly Thr Pro Leu Pro Thr Asn Ser Ala Thr Glu Arg Glu Val Thr Ala Pro Gly Ala Thr 335 Thr Leu Ser Gly Ala Leu Val Thr Val Ser Arg Asn Pro Leu Glu 350 360 Glu Thr Ser Ala Leu Ser Val Glu Thr Pro Ser Tyr Val Lys Val 365 Ser Gly Ala Ala Pro Val Ser Ile Glu Ala Gly Ser Ala Val Gly Lys Thr Thr Ser Phe Ala Gly Ser Ser Ala Ser Ser Tyr Ser Pro Ser Glu Ala Ala Leu Lys Asn Phe Thr Pro Ser Glu Thr Pro Thr 410 415 Met Asp Ile Ala Thr Lys Gly Pro Phe Pro Thr Ser Arg Asp Pro 425 430 435 Leu Pro Ser Val Pro Pro Thr Thr Thr Asn Ser Ser Arg Gly Thr 440 445 Asn Ser Thr Leu Ala Lys Ile Thr Thr Ser Ala Lys Thr Thr Met Lys Pro Gln Gln Pro Arg Pro Arg Leu Pro Gly Arg Gly Arg Pro

Gln Thr

<210> 514

<211> 2284 <212> DNA

<213> Homo Sapien

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<211> 431

<212> PRT

<213> Homo Sapien

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Lys Lys Ser Leu Glu Asp Val Val Ile Asp Ile Gln Ser Ser Leu 35 40 45

Ser Lys Gly Ile Arg Gly Asn Glu Pro Val Tyr Thr Ser Thr Gln 50 55 60

Glu Asp Cys Ile Asn Ser Cys Cys Ser Thr Lys Asn Ile Ser Gly
65 70 75

Asp Lys Ala Cys Asn Leu Met Ile Phe Asp Thr Arg Lys Thr Ala  $80 \hspace{1cm} 85 \hspace{1cm} 90$ 

Arg Gln Pro Asn Cys Tyr Leu Phe Phe Cys Pro Asn Glu Glu Ala 95 100 105

Cys Pro Leu Lys Pro Ala Lys Gly Leu Met Ser Tyr Arg Ile Ile 110 115 120

Thr Asp Phe Pro Ser Leu Thr Arg Asn Leu Pro Ser Gln Glu Leu 125 130 135

Pro Gln Glu Asp Ser Leu Leu His Gly Gln Phe Ser Gln Ala Val 140 145

Thr Pro Leu Ala His His His Thr Asp Tyr Ser Lys Pro Thr Asp 155 160 165

Ile Ser Trp Arg Asp Thr Leu Ser Gln Lys Phe Gly Ser Ser Asp 170 175 180

His Leu Glu Lys Leu Phe Lys Met Asp Glu Ala Ser Ala Gln Leu 185 190 195

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Ser Asp Gln Glu Ile Ala His Leu Leu Pro Glu Asn Val Ser Ala
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Thr Pro Lys Pro Ala Thr Leu Leu Pro Thr Asn Ala Ser Val Thr
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Val Thr Thr Val Thr Ser Gln Pro Pro Thr Thr Leu Ile Ser Thr
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Val Phe Thr Arg Ala Ala Ala Thr Leu Gln Ala Met Ala Thr Thr
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Ala Val Leu Thr Thr Thr Phe Gln Ala Pro Thr Asp Ser Lys Gly
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Val Glu Ser Ser Thr Met Asn Lys Thr Ala Ser Trp Glu Gly Arg
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Glu Ala Ser Pro Gly Ser Ser Gln Gly Ser Val Pro Glu Asn
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Gln Tyr Gly Leu Pro Phe Glu Lys Trp Leu Leu Ile Gly Ser Leu
Leu Phe Gly Val Leu Phe Leu Val Ile Gly Leu Val Leu Leu Gly
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<221> unsure

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<sup>&</sup>lt;400> 517

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Asp Thr Val Ser Leu Gln Cys Thr Tyr Arg Glu Glu Leu Arg Asp 35 40 45

His Arg Lys Tyr Trp Cys Arg Lys Gly Gly Ile Leu Phe Ser Arg 50 55

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Trp Cys Gly Val Glu Lys Arg Gly Pro Asp Glu Ser Leu Leu Ile
Ser Leu Phe Val Phe Pro Gly Pro Cys Cys Pro Pro Ser Pro Ser
Pro Thr Phe Gln Pro Leu Ala Thr Thr Arg Leu Gln Pro Lys Ala
Lys Ala Gln Gln Thr Gln Pro Pro Gly Leu Thr Ser Pro Gly Leu
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Ser Gln Tyr Thr Gly Thr Ser Pro His Pro Ala Thr Ser Pro Pro
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Glu Asp Thr Ser Pro Ala Leu Ser Ser Gly Ser Ser Lys Pro Arg
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Arg Asn Glu Lys Phe Trp Leu Ser Arg Leu Thr Ala Glu Glu Lys
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<223> Synthetic oligonucleotide probe

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